

# Fiat CR 32/CR 42

in action



 Aircraft Number 172  
squadron/signal publications

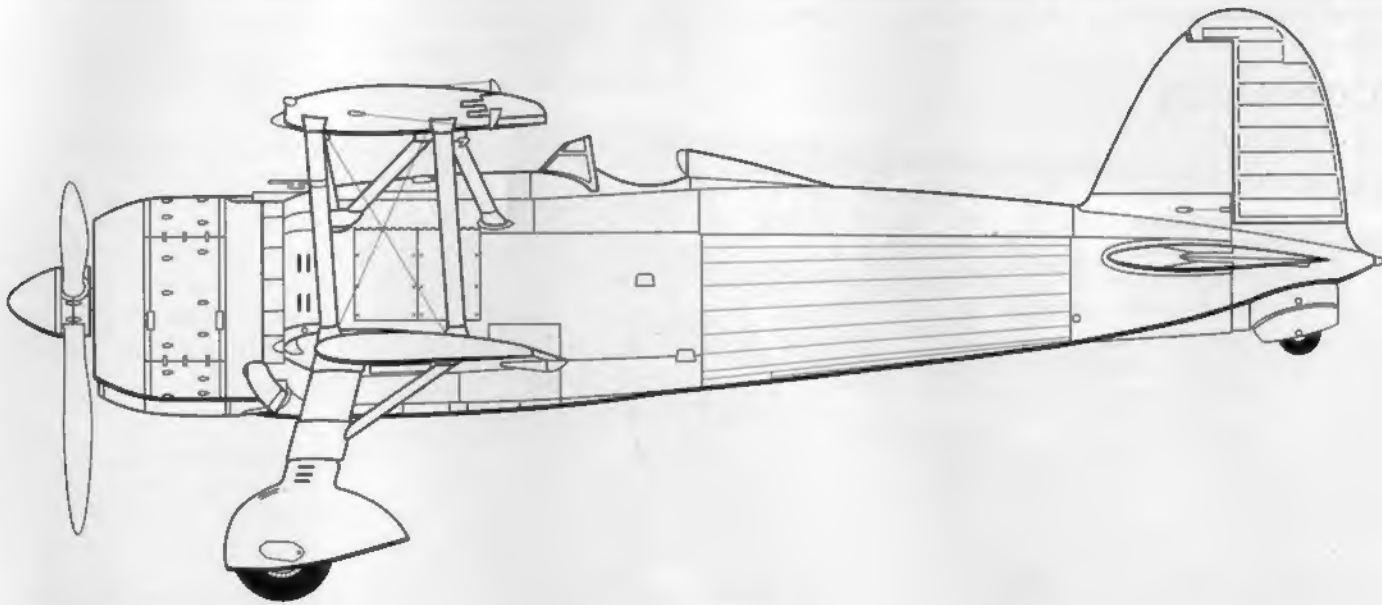
# **FIAT CR 32/CR 42**

**in action**

**By George Punka**

**Color by Don Greer and Richard Hudson**

**Illustrated by Richard Hudson and Lori Basham**



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**Capitano (Captain) Guido Bobba** of the **74<sup>a</sup> Squadriglia** (Squadron), **23<sup>o</sup> Gruppo** (Group) shot down a Hawker Hurricane flown by Plt Off Dick Sudgen over Malta on 13 July 1940. Bobba downed three more Hurricanes between 13 July and 28 November 1940 while flying this FIAT CR 42 Falco.

## Acknowledgements

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IHCA Ejército del Aire  
LUCE  
Stato Maggiore Aeronautica

## Dedication:

Comrades! If you are sitting together at the long table  
And I am not with you any more...  
If the commander calls me by name  
Shout loudly: "Presente!"

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Two FIAT CR 42 Falcons (Falcons) of **162<sup>a</sup> Squadriglia** (Squadron), **161<sup>o</sup> Gruppo** (Group) fly along the coast of Turkey in 1940. This **Regia Aeronautica** (Italian Air Force) unit operated from Rhodes in the Dodecanese Islands. The CR 42s are camouflaged in a dark green mottle over a light green base, with light gray undersurfaces. The engine cowling is painted yellow, while the aft fuselage band and rudder cross are white. The yellow triangle on the fuselage side is the emblem of **162<sup>a</sup> Squadriglia**. A black and white cat are on the triangle, along with the phrase **VARDA CHE TE SBREGO!** (BEWARE, I WILL SCRATCH YOU!) in red. (SMA)



# Introduction

Italian Engineer Celestino Rosatelli's first fighter prototype, designated CR, was designed during the early 1920s. The CR was ordered into production in 1924 under the new designation **CR 1** (*Caccia Rosatelli* — Fighter/Hunter Rosatelli). This single design began an unbroken string of Italian FIAT (Fabbrica Italiana Automobili Torino) biplane fighters that lasted to the end of World War II in 1945. Three different firms produced almost 250 CR 1 fighters between 1924 and 1926.

The **CR 5**, a further development of the CR1, was developed in 1925. Two prototypes, one powered by a British-designed nine cylinder Jupiter radial engine, and the other employing a 12 cylinder FIAT **A.20** inline engine were completed, but by then, the level of aircraft and engine development had outpaced the original CR 1 design. Both the CR 1 and CR 5 fighters were unusual in employing a reverse sesquiplane wing design — the lower wing having a greater area than the upper wing. Development of the CR 5 was halted in favor of a more promising design — the **FIAT CR 20**.

The CR 20 employed an all-metal structure (the first Rosatelli design to do so) and a combination of metal and fabric skinning. This aircraft also had a more conventional wing design in that the upper wing had a greater span than the lower wing. The first prototypes, powered by the 420 hp FIAT **A.20** inline engine, began flight trials in 1926. The CR 20 began production in 1927 and the first examples began to be delivered to fighter units of the *Regia Aeronautica* (RA). An additional 15 CR 20s were exported to the Baltic nation of Lithuania. A float fighter development, designated **CR 20 Idro** (Sea) and equipped with twin metal floats, did not get beyond the prototype stage. The CR 20 was quickly followed by a tandem two-seat training variant designated **CR 20B**. Further airframe development resulted in the CR 20bis along with a parallel development of the CR20bis powered by an uprated 425 hp FIAT **A20AQ** inline engine. CR20s with this engine were known as **CR 20AQ**. The last variant, a **CR20bis** equipped with a 450 hp Isotta-Fraschini 420 engine, appeared in 1932. This fighter was designated the **CR Asso**. Almost 550 CR 20s, in all variants, were built before production halted in 1933. Most of these fighters went to the RA, however over 50 aircraft were exported to Austria, Hungary, and Paraguay.

By 1932, FIAT Chief Engineer Celestino Rosatelli had almost a decade of experience in single engine fighter design. His next project, the **FIAT CR 30**, was designed around the new FIAT **A.30 RA** liquid-cooled V-12 engine. The A.30, designed by *Ingegnere* (Engineer) Zerbi, had a rated output of 542 to 590 hp, which rose to approximately 690 hp for takeoff. The A.30 was an ideal aircraft engine offering a good power to weight ratio, low fuel consumption, and reliable operation.

Developmental work on the CR 30 was greatly speeded up in early 1932. Both Italy and FIAT were eager to enter the new fighter design into competition at the International Aeronautical Meet at Zurich, Switzerland. The prototype, M.M. (*Matricula Militare*; serial number) 164 was ready on 5 March 1932. Two months later the second and third prototypes — M.M. 165 and M.M. 166 — were also ready for testing and demonstration. The first and third prototypes were chosen for the meet in Zurich. At the time, FIAT believed the CR 30 to be the fastest and most maneuverable fighter of the time. The Zurich meet in July of 1932 proved them right. The two prototypes won the prestigious Dal Molin Cup, leading their classes throughout the meet and maintaining their lead in the final series of demonstrations.

CR 30 production began in 1933, including a single example prepared for demonstration to a Chinese delegation. This aircraft was subjected to a series of tests in which it had the opportunity to demonstrate its capabilities. These tests came to naught — the Chinese military staffs were prejudiced against in-line engine fighters due to their perceived vulnerability to damage in their cooling systems. The Chinese preferred air-cooled radial engines. Efforts to sell the CR 30 to the Chinese were abandoned.

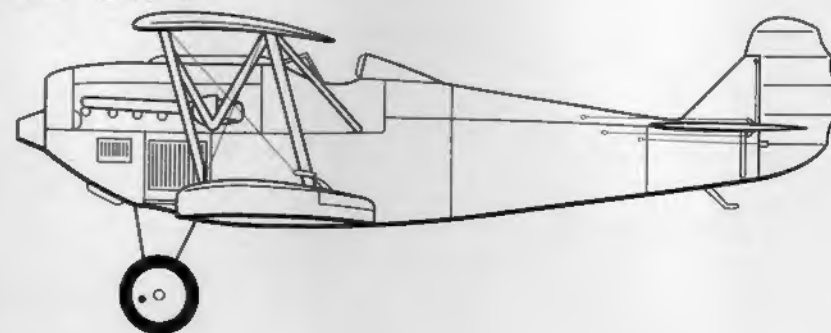
The Regia Aeronautica began to take delivery of the first CR 30s in the spring of 1934, 1° *Stormo* (Wing) and 2° *Stormo* being the first fighter units to receive the aircraft. The new fighters quickly found their way to the African colonies with 8° *Gruppo* (Group), taking part of 2° *Stormo* transferring to Benghazi, Libya in 1935. In 1936, these two units were followed by 13° *Gruppo* and the *Commando di Stormo* (the unit's HQ element).

Structurally, the FIAT CR 30 was all metal, but in keeping with the design practices of the era, featured fabric skinning over the wings and tail surfaces. Steel reinforced duralumin (an aluminum, copper, magnesium, and manganese alloy) was used for the fuselage, wings, and tail. The entire nose section was skinned in dural. In keeping with Rosatelli's previous fighter designs, the CR 30 used a sesquiplane wing layout (one wing being less than half the area of the other wing) braced by Warren Truss struts versus the traditional N-struts used on many other fighters of the 1920s and early 1930s. The Warren Truss design gave the struts a distinct V-shape when viewed from the front or rear.

The CR 30 was 25 feet, 10.25 inches (7.9 m) long, had a wingspan of 34 feet 5.33 inches (10.5 m), and weighed 2965 lbs (1344.9 kg) empty. The FIAT A.30 RA engine turned a two-bladed metal propeller and was cooled by chin mounted oil and coolant radiators. The fighter's armament consisted of a pair of nose mounted Breda-SAFAT 12.7mm machine guns firing through the propeller disk. Each weapon was supplied by an ammunition box mounted in the fuselage in front of the pilot. A provision was made to mount two SAFAT 7.7mm machine guns in the nose in lieu of the 12.7mm weapons, however the 12.7mm machine guns were preferred due to their longer range and greater impact. A single Type RA 80-1 radio was also provided.

Italy produced 124 CR 30s of various models, including a small number of two-seat trainers. Three single seaters and two trainers were delivered to Austria. Twelve CR 30s were exported to Hungary where they served in fighter training units until 1943. A pair of CR 30 floatplanes did not get beyond the developmental stage. CR 30 production ceased in 1935 due to the development of a new fighter — the **FIAT CR 32**.

## FIAT CR 1

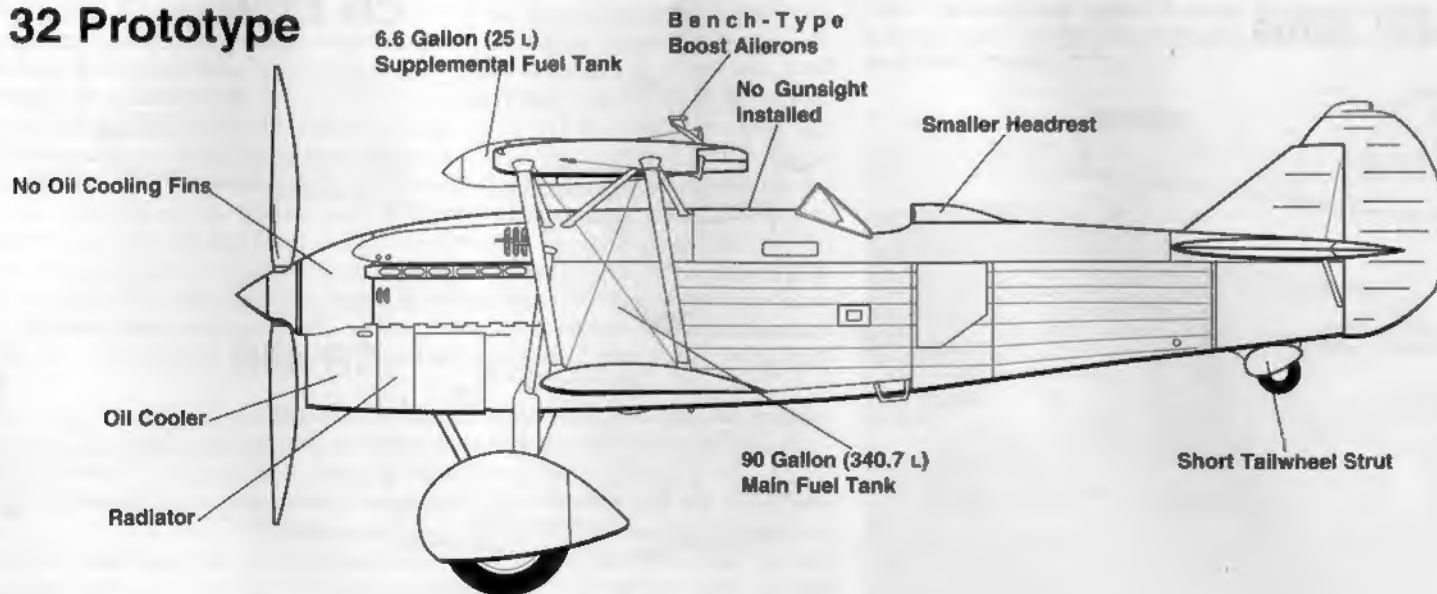




The prototype FIAT CR 30 (M.M. 165) made its first flight on 5 March 1932. The aircraft is finished in silver dope and natural metal with green (forward), white, and red tail stripes. Compared to the later CR 32, the CR 30 was 1.4 ft (0.4 m) longer with a 3.3 ft (1 m) greater wingspan. (Höfling)

Two CR 30 Idro floatplane derivatives of the CR 30 were transported to Marina di Pisa in 1934. The silver fuselage of this aircraft is trimmed in red. The designation FIAT CR 30 IDRO under the horizontal stabilizer is white with black trim. The CR 30 Idro was not placed into production. (Höfling)

## CR 32 Prototype



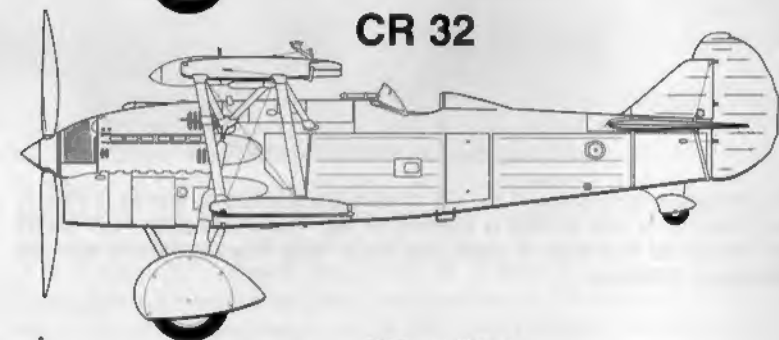


# Development

**CR 32 Prototype**



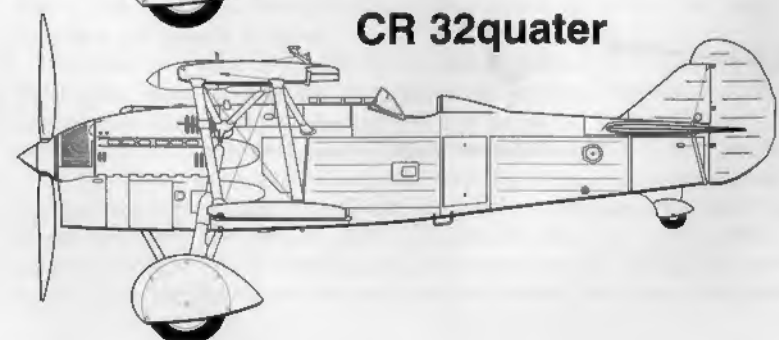
**CR 32**



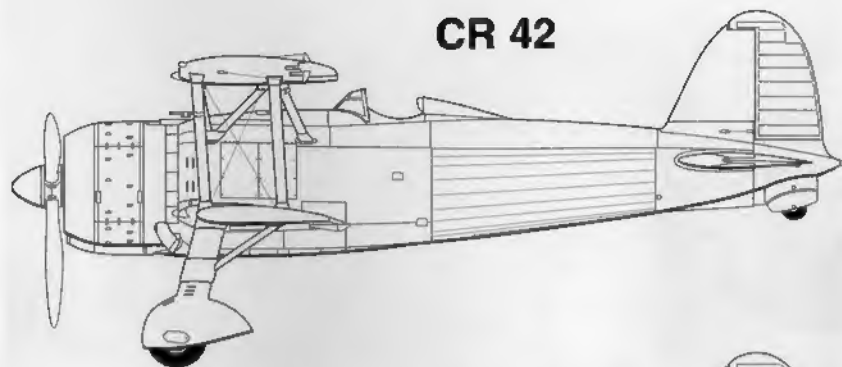
**CR 32bis**



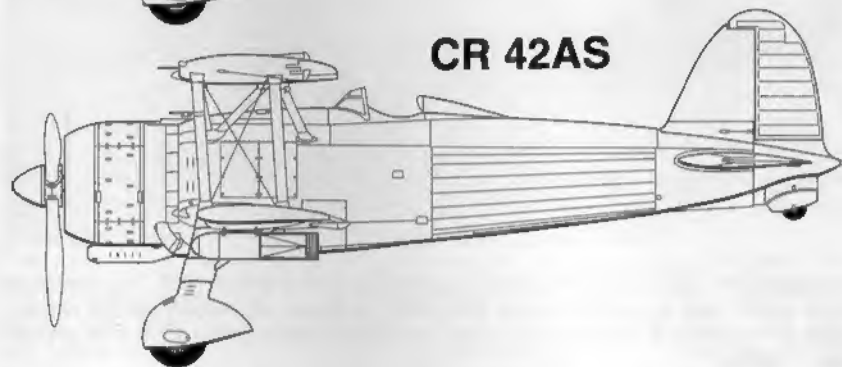
**CR 32quater**



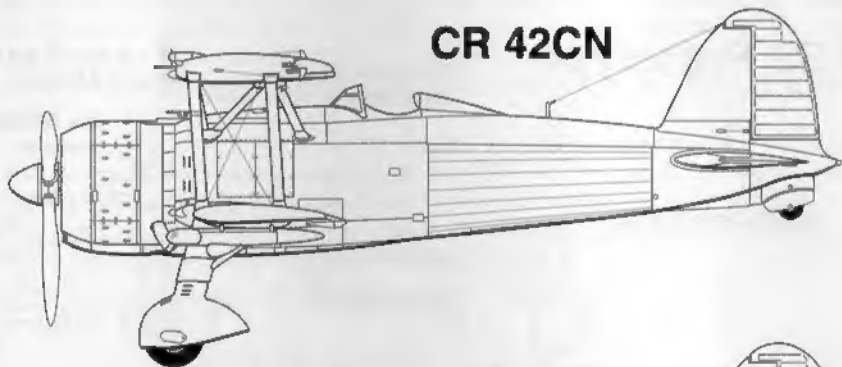
**CR 42**



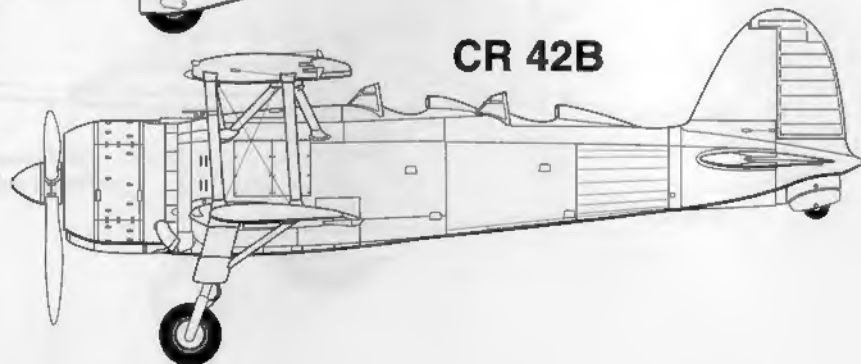
**CR 42AS**



**CR 42CN**



**CR 42B**



# FIAT CR 32

Shortly after the design of the FIAT CR 30 had been finalized, Rosatelli began design work on the CR 32. The CR 32 was, for the most part, a smaller version of the earlier CR 30, which took advantage of additional wind tunnel testing to further refine the earlier design. The *Ministero dell' Aeronautica* (Italian Air Ministry) ordered the construction of an experimental prototype which was to be completed in the spring of 1933. Rosatelli's new fighter fully met its expectations and demonstrated exceptional stability. After successfully completing its first test flights, the CR 32 NC 1 (MM. 201) was transferred to the Experimental Unit for further evaluation. The *Ministero* ordered the type into mass production in 1934.

The CR 32 retained the liquid-cooled, 12-cylinder FIAT A30 RA engine used in its predecessor. Although the engine was slightly improved, it still developed its original 592 HP at 8530 feet (2600 M) at 2750 rpm. The engine turned a two-bladed, dual pitch (ground adjustable) FIAT metal propeller.

The new CR 32 also retained most, if not all, of the aerodynamic and structural features of the earlier CR30 with the exception of size. The length was reduced to 24 feet 5.25 inches (7.45 M), while the wingspan was reduced to 31 feet 2 inches (9.5 M). The gross wing area was reduced from 291.17 Ft<sup>2</sup> (27.05 M<sup>2</sup>) to 237.89 Ft<sup>2</sup> (22.1 M<sup>2</sup>). Despite the smaller size and similar construction, the CR 32's empty weight rose to 3205 lbs (1453.8 KG) — an increase of 240 lbs (108.9 KG).

The fuselage structure was built of duralumin tubing and consisted of four longerons connected by a triangular framework with U-section stringers supported by shaped, sheet aluminum formers. The joints and spar joints of the fuselage were made of steel. The forward part of the fuselage from the engine to the cockpit, the entire upper fuselage decking, and the area around the tail wheel mounting structure was covered by light aluminum panels. The remainder of the fuselage was fabric covered. A circular chin intake ducted cooling air to the oil and coolant radiators mounted on the engine bearers beneath the engine. The oil tank was mounted in the extreme upper nose and capped by a series of 42 cooling fins — 21 per side. A 90 gallon (340.7 L) fuel tank was mounted behind the engine firewall and in front of the cockpit. The open cockpit was equipped with standard instrumentation and an in-flight adjustable seat. A wrap-around Perspex windshield protected the pilot.

The wings were built using two spars of drawn duralumin tubes of rectangular section and ribs of square aluminum tube. Ailerons were incorporated into the upper wing. These were augmented by a set of bench-type boost ailerons mounted above the upper wing surface. A center bullet fairing built into the center section of the upper wing contained a 6.6 gallon (25 L) auxiliary fuel tank. The upper wing was staggered forward by 9°30'. Both wings were fabric covered. The wings were supported by Warren Truss steel struts attached to the two main spars in each wing. A set of N-type cabane struts braced the upper wing center section to the fuselage.

The tail surfaces were also made of duralumin construction covered by fabric. The variable-incidence tailplane could be adjusted using a hand wheel mounted on the port side of the cockpit. The rudder and elevator were both statically and aerodynamically balanced.

The fixed, split-axle main undercarriage incorporated two main legs attached to the front fuselage. The 31.5 inch (800 MM) balloon tires were equipped with pneumatic brakes and hydraulic shock absorbers. The wheels were covered by streamlined aluminum wheel fairings. The pneumatic brakes were supplied by a compressed air tank located behind and to the right of the pilot's seat.



FIAT CR 32s assigned to 154<sup>a</sup> Squadriglia, 4<sup>a</sup> Stormo (Wing) are parked at Budapest, Hungary for a flight display in 1936. The Stormo's 'Diavoli Rossi' (Red Devil) emblem is located on the fuselage behind the cockpit. The number 154-4 on the aft fuselage is in black. (Punka)

CR 32s of 155<sup>a</sup> Squadriglia, 4<sup>a</sup> Stormo are assembled in Budapest for a flight display in 1936. These aircraft appear in silver dope and natural metal finish. The wing struts are painted black. The CR 32s on display were among 350 machines produced between 1934 and 1936. (Punka)







Maintenance crewmen service the 690 hp FIAT A30 RA engine of a first production series CR 32. This liquid-cooled, V-12 engine also powered the earlier CR 30 fighter. The FIAT two-bladed steel propeller has been removed. Oil cooling fins were mounted on the oil tank in front of the open engine. (Punka)

The CR 32's armament consisted of a pair of .303 in caliber (7.7mm) Vickers or .50 caliber (12.7mm) Breda-SAFAT machine guns mounted in the upper nose decking. These weapons were synchronized to fire through the propeller disc. Each weapon was fed from an ammunition box mounted within the fuselage and accessed via removable panels on the fuselage sides. Each box held 750 rounds of 7.7mm ammunition or 350 rounds of 12.7mm ammunition.

Despite the increase in weight and little improvement in power, the CR 32's maximum speed rose to 223.7 mph (360 kmh). With a fully loaded weight of over 4225 lbs (1916.5 kg), the CR 32 had a takeoff run of 880 feet (268.2 m) and required five minutes and 25 seconds to reach 10,000 feet (3048 m). The CR 32's most outstanding quality was its superb maneuverability.

The first series of 50 machines (M.M. 2589 – 2638) was produced from March to August of 1934. A total of 282 CR 32s were built before production ceased in favor of the more heavily armed FIAT CR 32bis. This variant retained the two 12.7mm SAFAT machine guns in the nose and received a second pair of machine guns — 7.7mm SAFATs — singly mounted in a fairing

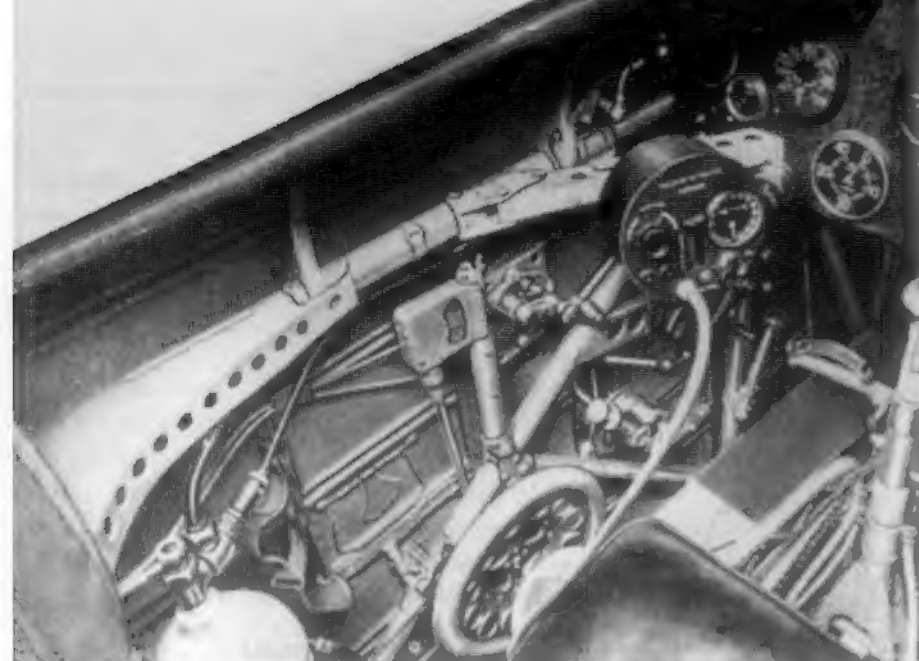


The CR 33 employed a 700 hp FIAT A.33 R.C. 35 engine on a CR 32 airframe. Flown for the first time in 1937, this aircraft employed a three-bladed propeller and modified landing gear struts. A 7.7mm machine gun was mounted in each lower wing. The CR 33 reached a maximum speed of 262 mph (421.6 kmh) in tests; however, this aircraft did not enter operational service. (Punka)

on the upper surface of each lower wing. Apart from detail changes, the CR 32bis was also equipped with an uprated FIAT A30 RABis engine. Despite the additional power, the added weight of the wing machine guns and ammunition were detrimental to the CR 32s maneuverability and speed. CR 32bis production began in 1936 and amounted to 283 machines. Many were exported to Austria, China, Hungary, Paraguay, and Spain.

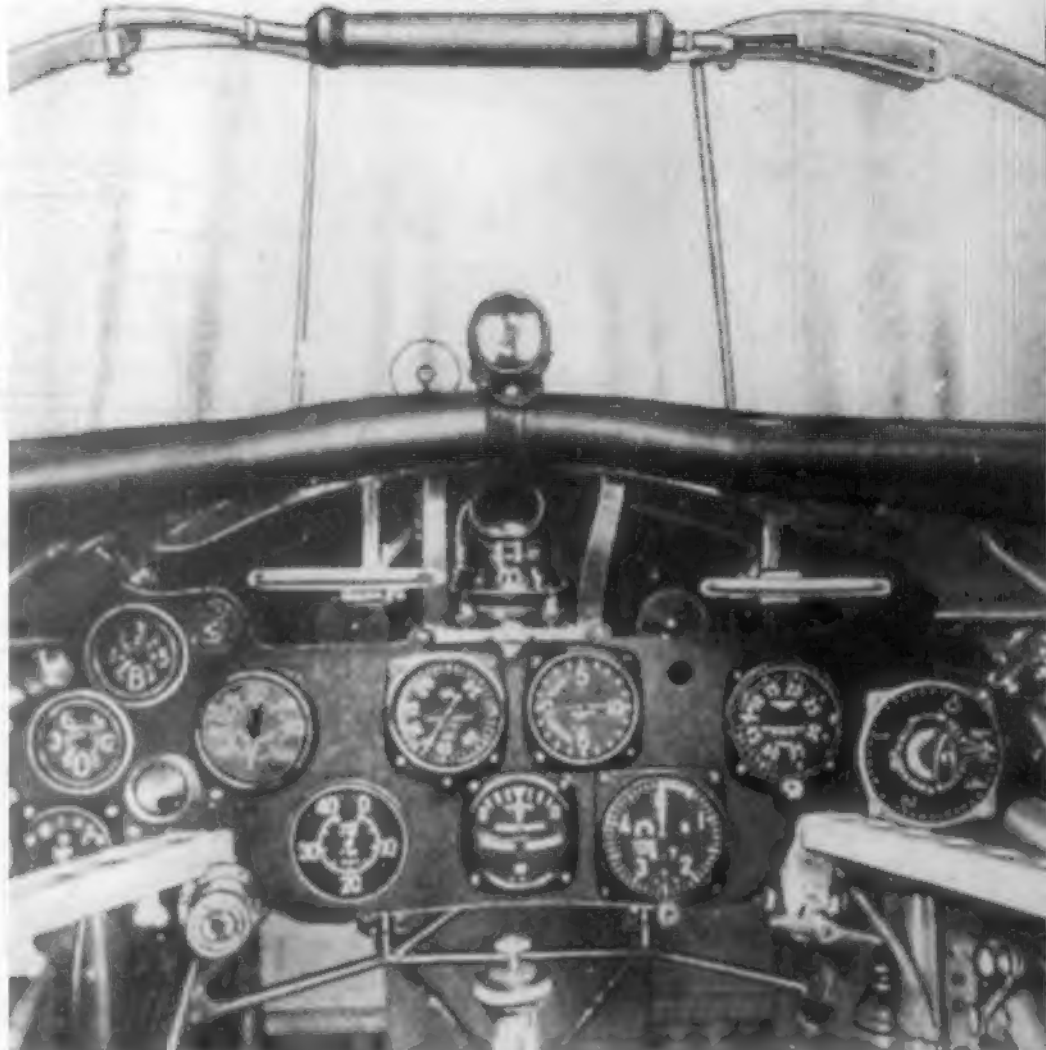
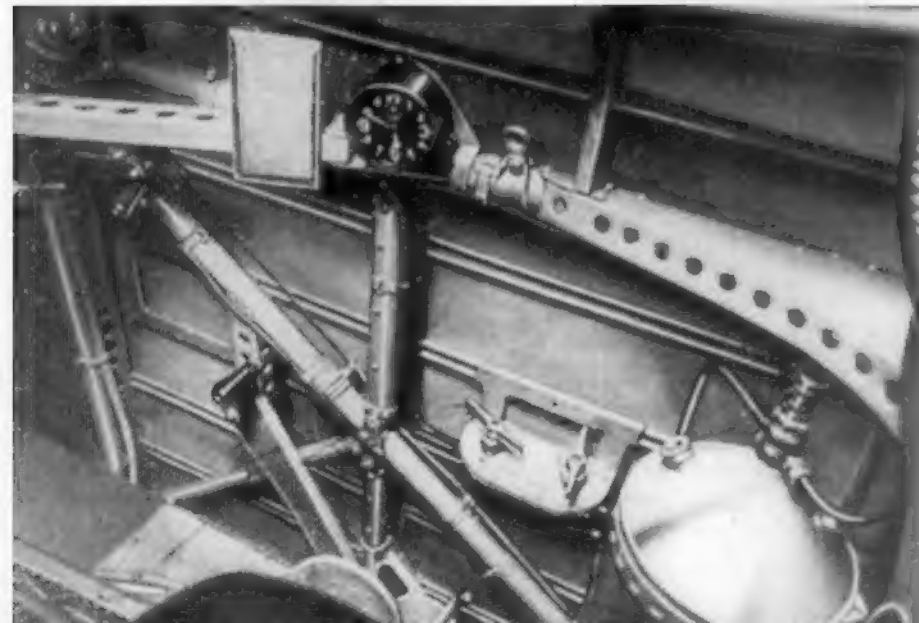
CR 32bis production was halted in July of 1937 in favor of the improved CR 32ter. Combat experience in Spain had convinced many pilots that the two cowl mounted 12.7mm machine guns offered sufficient firepower. CR 32ter fighters reverted to the earlier two-gun armament and had a slightly modified undercarriage. Later production versions mounted two attachment points under the fuselage for 12 five pound (2.3kg), two 100 lb (45.4 kg) bombs, or one 200 lb (90.7 kg) bomb. CR 32ter production amounted to 150 machines before production ceased in December of 1937.

The FIAT CR 32quater represented the final and definitive example of the CR 32 series fighters. The 'quater' retained the armament and bomb carrying capability of the CR 32ter in addition to receiving further improvements to the landing gear, gunsight, and cockpit instrumentation. Italian manufacture of the CR 32quater came to 337 machines before production halted in the fall of 1939. A small number of 'quaters' were exported to Paraguay and Venezuela. A further 100 machines were licensed produced in Spain by Hispano-Suiza as the HA-132-L 'Chirri' (Cricket; also, CR in Italian). These fighters — some converted to two-seat trainers — remained in service up to 1953. Total production of the CR 32 series amounted to some 1152 machines.

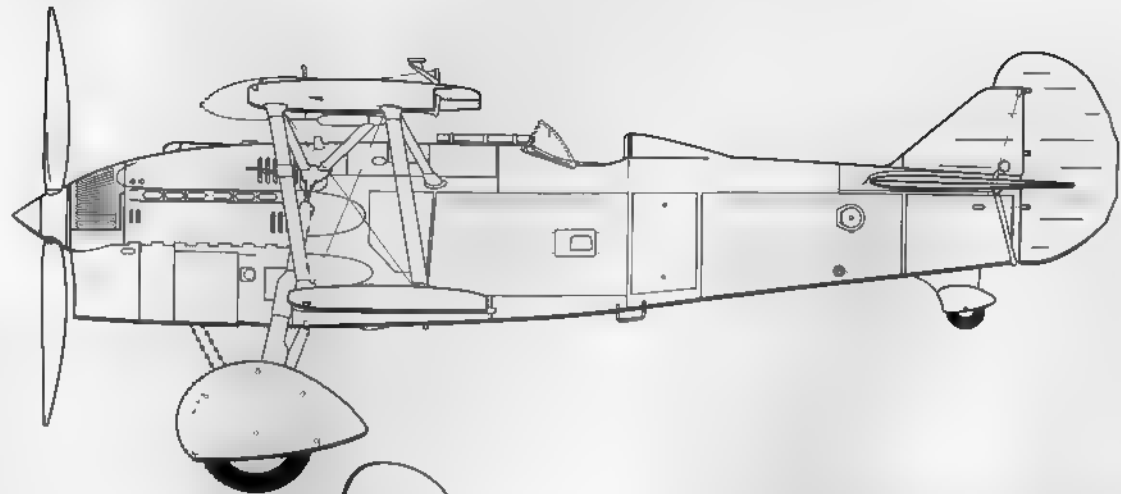
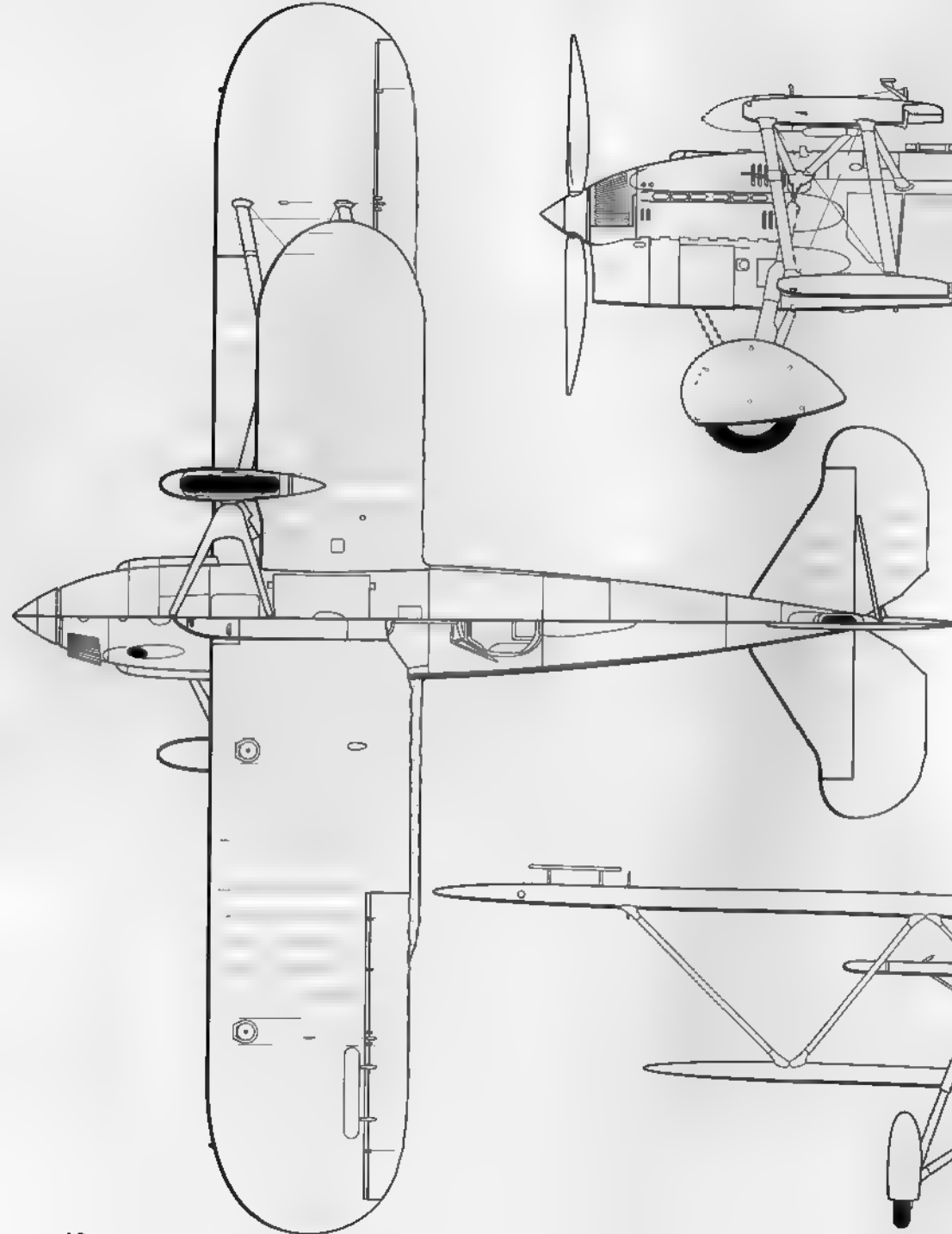


The horizontal stabilizer incidence adjustment wheel is located in the port side of the CR 32quater cockpit. An oxygen bottle for high altitude flying is placed aft the control wheel, beside the pilot's seat. The throttle is positioned above and just ahead of the adjustment wheel. The leather strap attached to the rudder pedal keeps the pilot's foot on the pedal during maneuvers. (Punka)

A clock and checklist holder are located on the starboard cockpit wall. A compressed air cylinder is placed farther aft in the cockpit. This cylinder supplied air for the CR 32's pneumatic brakes. The light colored framework is natural metal (duralumin), while the cockpit interior is painted anti-corrosion green (FS34491). (Punka)

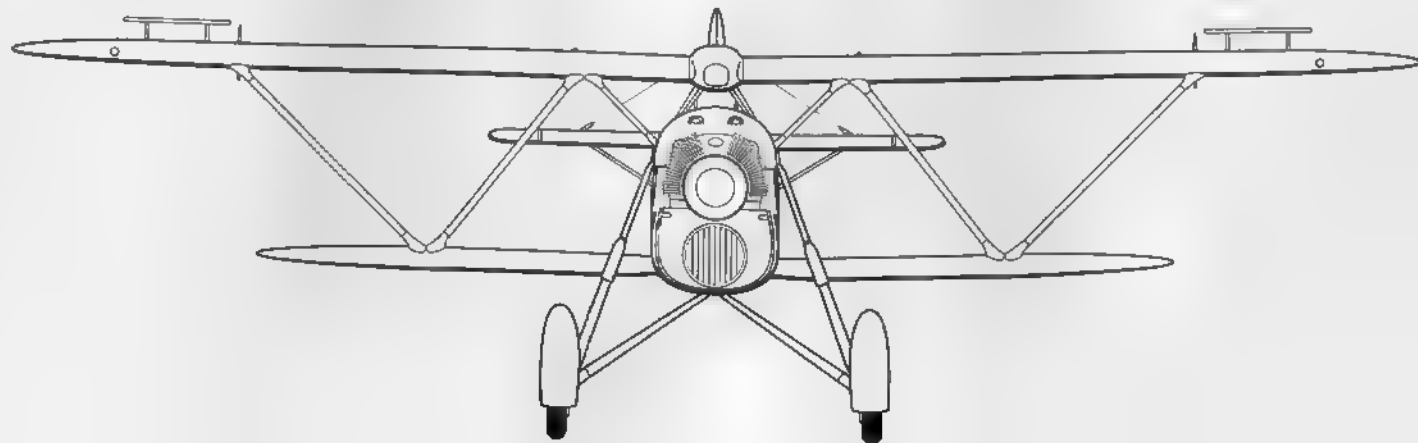


The CR 32 cockpit was fairly standard for its time, with most controls mounted on the tubular fuselage section. The CR 32quater instrument panel is mounted on the cockpit frames and painted flat black. The top row of flight instruments are (L-R): fuel pressure gauge; water and oil thermometer; air speed indicator; rate of climb indicator; another air speed indicator; and a level indicator. The instruments on the bottom row are: oil pressure gauge; fuel warning light; tachometer; turn and bank indicator; and altimeter. The telescopic gunsight is mounted above the black padded cockpit coaming while the gunsight headrest is mounted at the top of the windshield. The OMI 03 compass is mounted below the gunsight, flanked by the machine gun cocking handles. The control stick grip is visible immediately below the turn and bank indicator. The button on top of the control stick grip triggers the fighter's two 12.7mm Breda-SAFAT machine guns. The engine priming handle is located in the lower left corner of the instrument panel. (Punka)



### FIAT CR 32quarter Specifications

|                      |   |
|----------------------|---|
| Wingspan.....        | 31 feet 2 inches (9.5 m)  |
| Length.....          | 24 feet 5.25 inches (7.45 m)  |
| Height.....          | 8 feet 7.5 inches (2.63 m)  |
| Empty Weight.....    | 3205 pounds (1453.8 kg)   |
| Maximum Weight.....  | 4225 pounds (1916.5 kg)   |
| Powerplant.....      | One 789 HP FIAT A30 R.A.bis 12-cylinder,<br>liquid-cooled, inline engine                          |
| Armament.....        | Two fuselage mounted .50 calibre<br>(12.7 mm) Breda-SAFAT machine guns<br>with 350 rounds per gun |
| Maximum Speed.....   | 223.7 MPH (360 KM/H) at 9840 feet (2999 m)  |
| Service Ceiling..... | 24,770 feet (7549.9 m)  |
| Range.....           | 495 miles (796.6 KM) at 197 MPH (317 KM/H)<br>at 15,750 feet (4800.6 m)                           |





## CR 32 Production

| Serial Numbers     | Dates of Production         | No. Produced |
|--------------------|-----------------------------|--------------|
| M.M. 2589-2638     | March-August 1934           | 50           |
| 2639-2662          | November 1934-July 1935     | 24           |
| 2663-2762          | July-November 1935          | 100          |
| 2763-2870          | November 1935-February 1936 | 108          |
| 2957-3011 'bis'    | April-June 1936             | 55           |
| 3012-3071          | July-October 1936           | 60           |
| 3072-3091          | January-February 1937       | 20           |
| 3092-3169          | February-May 1937           | 78           |
| 3170-3239          | May-July 1937               | 70           |
| 3420-3519 'ter'    | July-November 1937          | 100          |
| 3520-3569          | November-December 1937      | 50           |
| 3892-3961 'quater' | January-March 1938          | 70           |
| 4043-4192          | March-September 1938        | 150          |
| 4209-4245          | September-December 1938     | 37           |
| 4465-4494          | November-December 1938      | 30           |
| 4618-4667          | September 1938-May 1939     | 50           |

NOTE: M.M. = *Matricola Militare* (Military Number)

In an attempt to improve maneuverability, FIAT developed the CR 33. This aircraft was based on the CR 32bis and first flew during 1937. The CR 33 was powered by a 700 hp FIAT A.33 R.C. 35 engine fitted with a three-bladed propeller. This aircraft also featured a modified landing gear, and retained the CR 32bis' two wing-mounted 7.7mm machine guns. The CR 33 flew at a maximum speed of 262 mph (421.6 kmh) and had a range of 435 miles (700 kmh). The *Regia Aeronautica*, despite the CR 33's improved performance, preferred the FIAT G.50 monoplane fighter. Only a handful of CR 33s were built, and none reached operational units.

## The CR 32 in China

Twenty-four CR 32s from the first production batch were earmarked for China, but not all of these machines were actually shipped. FIAT personnel accompanying the shipment assembled the fighters at Nanchang Air Base, near Shanghai. The Chinese Air Staff had some problems with the machines. The distance of the FIAT's base made spare parts acquisition difficult. Additionally, the FIAT A30 RA engines ran on a mixture of gasoline, benzol, and alcohol rather than standard aviation gasoline. Benzol and alcohol were not available in China, which forced the two fuel additives to be imported. China gradually abandoned the CR 32 program and no additional machines were purchased. The remaining CR 32s were eventually lost through attrition — some in accidents and others in combat against the Japanese while flying with the 8th Squadron, 3rd Fighter Group of the Chinese Air Force.



The bullet fairing mounted in the center of the upper wing of this 4' *Stormo* CR 32 contained a 6.6 gallon (25 L) auxiliary fuel tank. The main fuel tank housing 90 gallons (341 L) was mounted between the cockpit and the engine firewall. The wing struts were usually painted black on silver finished CR 32s before World War Two. (Punka)

Ten CR 32s of a *Regia Aeronautica* display team fly in formation during an aerobatic performance. Aircraft from 4' and 6' *Stormi* demonstrated the maneuverability of the CR 32 in a series of displays in both Europe and South America between 1936 and 1939. (Punka)



## The CR 32 in the Spanish Civil War

The first CR 32s arrived by ship at Melilla, Morocco on 14 August 1936. At this time, the Nationalist forces under the command of *Generalísimo* Francisco Franco, possessed only a small air force. Four days later, the first fighters were reassembled, tested and in the days that followed, flown to bases at Tablada and Cordoba.

The fighter unit, equipped with twelve machines and commanded by *Capitano* (Captain) Vincenzo Dequal, was designated *1ª Escuadrilla de Caza de la Aviación de El Tercio* (1st Fighter Squadron of the Foreign Legion Air Arm). The Spanish nicknamed the CR 32 '*Chirri*' (Cricket) and gave the fighter the type code number 3.

The CR 32s were quickly thrown into combat in the Spanish Civil War. On 21 August 1936 *Teniente* (Lieutenant) Ugo Ceccherelli shot down a Nieuport 52 over Cordoba during an intercept and escort mission. This was the first aerial victory of the war. Five days later, *Sergente* (Sergeant) Magistrini claimed the second victory when he shot down another Republican fighter near Granada. An additional nine CR 32s arrived in Spain at the end of August. These fighters — flown and maintained by Italians — were to form a second fighter squadron.

On 31 August 1936 French volunteers, flying Republican Hawker Furies, made their combat debut and engaged four CR 32s. Two CR 32s, flown by *Teniente* Monico and *Sergente* Castellani were shot down in the ensuing dogfight. These were the first losses of the Italian fighter during the Civil War.

Another batch of nine CR 32s arrived on 3 September. These aircraft, combined with the earlier fighters, formed a second fighter *escuadrilla* in mid-September under *Capitano* Dante Olivera. At this time the *1ª Escuadrilla* adopted the nickname '*La Cucaracha*' (The Cockroach). There are differences of opinion about the origins of the name. One opinion favors

Two of the first CR 32s sent to Spain fly a combat air patrol during 1936. The aircraft are finished in silver with black and white markings. An *Aviación de El Tercio* (Spanish Foreign Legion Air Arm) CR 32 downed their first Republican aircraft of the war — a Hispano-built Nieuport 52 — on 20 August 1936. (SMA)

the naming of the unit after a song popular at the time, while another states that Moroccan troops named the squadron based on the CR 32's resemblance to the insect.

Spanish pilots soon joined the Italian personnel. Capt Joaquin Garcia Morato, eventually the highest scoring Nationalist pilot, Capt Angel Salas Larrazabal, and Lt Julio Salvador Diaz-Benjumea joined the unit in September, while Lt Miguel Garcia Pardo joined the squadron in October. The *3ª Escuadrilla* was formed at Tablada on 28 September.

The CR 32s soon gained air superiority against the Republican Air Force, primarily equipped with the Soviet I-15 and I-16 fighters. The I-15 biplane — nicknamed '*Chato*' (Flat Nose) by the Spanish — lacked the Italian fighter's armament and structural strength. The I-16 '*Mosca*' (Fly) monoplane proved to be the CR 32's main adversary. The Soviet aircraft included such advanced design features as a cantilever wing and retractable undercarriage. This design enabled the I-16 to fly over 62.1 mph (100 kmh) faster than the CR 32. However, the Italian fighter possessed better maneuverability, diving speed, and turning radius than the '*Mosca*'. The CR 32's two 12.7mm machine guns also outranged the I-16's four 7.62mm weapons. This allowed CR 32 pilots to initiate and break off engagements at will.

The I-16s prevailed over the CR 32s in their first meeting over Villa del Navalcalnero on 15 November. Four '*Moscas*' brought down two *1ª Escuadrilla* CR 32s on the first firing pass. The CR 32s gained revenge two days later, when *Capitano* Larrazabal's flight successfully engaged five I-16s intercepting Nationalist Ju52/3m bombers.

The three *escuadrillas* of *Aviación de El Tercio* were disbanded on 31 December 1936 upon the creation of the *Aviazione Legionaria* (Aviation Legion). The squadrons were immediately reformed as *16º Grupo* (Group) '*Cucaracha*'. This group consisted of 24<sup>th</sup>, 25<sup>th</sup>, and 26<sup>th</sup> *Squadriglie* under the command of *Maggiore* (Major) Tarsisco Fagnani. *16º Grupo* included an all-Spanish flight called *La Patrulla Azul* (The Blue Patrol). This flight consisted of

These silver finished *Aviación de El Tercio* CR 32s display the two black aft fuselage bands worn by Nationalist aircraft early in the Spanish Civil War. The black M on the rudders was a morale marking at this point in the conflict. Later in the war, this monogram was the emblem of the *Mussolini Squadriglia* in Spain. (SMA)



Captains Morato and Narciso Bermudez de Castro, and Lt Diaz-Benjumea. Morato would shoot down 41 aircraft in 80 engagements during the war to become the conflict's leading air ace. He became Commander in Chief of the Nationalist Air Force by the end of 1938. Morato was killed in a flying accident on 4 April 1939 — one week after the Spanish Civil War ended.

The *Aviazione Legionaria*'s CR 32 units supported Nationalist and Italian units fighting on the Madrid front in central Spain during February and March of 1937. Three CR 32s were captured after their pilots mistakenly landed on Republican held airfields, and the aircraft subsequently taken into Republican service. This resulted in an order from *Aviazione Legionaria* commander *Generale de Brigata Aeria* Velardi for CR 32 units not to cross into Republican air space. The incident also hastened the equipment of Spanish units with these aircraft. The first all-Spanish CR 32 squadron, *1-E-3 Escuadrilla*, was formed with six aircraft on 30 March 1937. A second squadron was formed one month later, and these two units were formed into *2-G-3 Grupo* on 4 May. *Capitano* Morato commanded this first all-Spanish Nationalist fighter group. This unit was joined by two new Italian CR 32 groups, *6° Gruppo* (*31ª, 32ª, and 33ª Squadriglie*) and *23° Gruppo* (*18ª, 19ª, and 20ª Squadriglie*).

The Nationalist CR 32 units participated in air operations over the Madrid and Aragon fronts during the spring and summer of 1937. Republican air raids on Palma Mallorca — an island off Spain's southeast coast — resulted in the formation of *10° Gruppo Autonomo Caccia della Baleari* (10th Independent Fighter Group of the Balearics) during November of 1937. This new CR 32 unit consisted of *101ª and 102ª Squadriglie* and was based at San Juan, Mallorca.

A second Spanish CR 32 group, *3-G-3*, was formed at the beginning of 1938 and operated in the Battle of Teruel being fought at that time. The *Aviazione Legionaria* also received 12 CR 32bis aircraft to equip the *Squadriglia Autonomo Mitragliamento 'Frecce'* (Arrows). This unit,

A silver CR 32 flies over Cap di Bernardo airfield, Spain in 1936. The intake underneath the propeller spinner ducted air to the oil and coolant radiators mounted beneath the engine. The exterior of the water coolant radiator is in a darker shade of metal than the surrounding fuselage skin. (SMA)



commanded by *Capitano* Vosilla, employed these four gun versions of the CR 32 in the close air support role.

CR 32s were heavily involved in the Battle of the Ebro, which began on the evening of 24-25 July 1938 with a Republican attack across the Ebro River. Air battles fought over the Ebro front involved up to 250 aircraft on both sides. These were the largest air clashes seen up to that time in history. The Italians disbanded *6° Gruppo* after the Nationalist victory at the Ebro, and transferred the 27 CR 32s to Spanish units. One of these units was the new independent squadron *8-E-3*, formed at Extremadura with eight aircraft. *Capitano* Jose Pazo served as *8-E-3's* initial commander.

Aircraft from *23° Gruppo 'Asso di Bastoni'* (Ace of Clubs) intercepted 20 of the remaining Republican aircraft over the western Mediterranean Sea on 5 February 1939. The Republicans had departed Serona airfield after the fall of Barcelona that day, bound for still-friendly Valencia. The CR 32s shot down four Republican aircraft in the dogfight, then destroyed five *I-16s* on the ground at Banolas airfield. The last aircraft from either side to be shot down was a *23° Gruppo* CR 32 downed on 31 March 1939 — the day the Spanish Civil War ended.

At war's end, 199 CR 32s remained in service out of the 377 delivered during the three-year long conflict. Of those in service, 96 aircraft were assigned to Italian units, 89 served in Spanish units, and 14 others were in repair depots or serving in the Nationalist *Escuela de Caza* (Fighter School). The Nationalists received 115 CR 32s from the Italians during the Civil War.

CR 32s served as the standard fighter of the *Ejercito del Aire* (Spanish Air Force) after the war. Hispano-Suiza built 100 CR 32quaters, designated *HA-1 32-L Chirri*, between 1940 and 1943. These fighters served with *Regimiento Mixto No. 3* (*28 Grupo*) and *Regimiento Mixto No. 4* (*29 Grupo*). Hispano-Suiza also converted 40 CR 32s into tandem two-seat trainers in 1942 for service with the single seat machines in the *Escuela de Caza*.

A *X Gruppo 'Balaeri'* CR 32 performs a patrol mission over the Balearic Islands during 1938. The aircraft number (7) is in white next to the black fuselage disc. The aircraft is painted green, sand, and terracotta (red-brown) on the upper surfaces with light gray on the undersurfaces. (SMA)





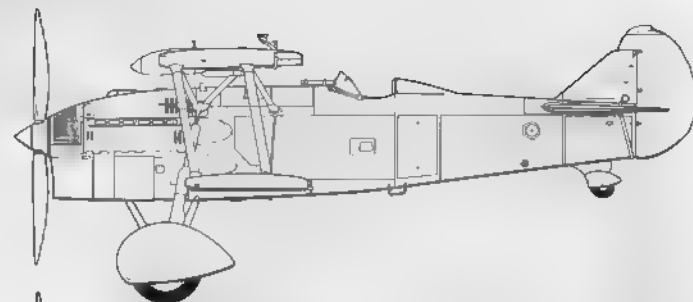


CR 32bis (451) is parked at Republican-held Don Benito airfield after its Italian pilot landed there by mistake on 19 September 1936. The wheel spats were removed from the CR 32 – a normal practice when operating from muddy airfields. A Republican Nieuport-Delage 52 fighter is parked behind the CR 32's tail. (de Cellis Borrell)

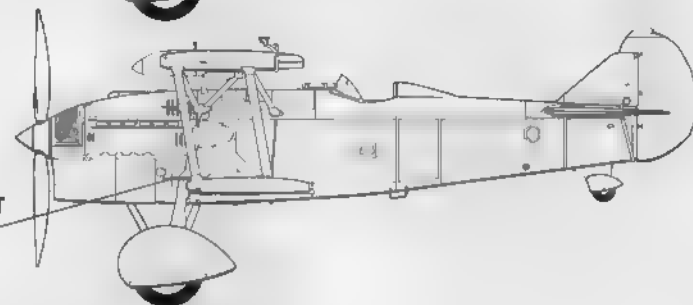
An *Aviazione Legionaria* (Italian Aviation Legion) mechanic rests his arm on the lower wing of CR 32 (560) in May of 1937. The aircraft was assigned to 18<sup>a</sup> Squadriglia, XXIII Gruppo 'Asso di Bastoni' (Ace of Clubs). A white number 18 is painted on the black wheel spat flash. Black Nationalist discs are painted on the under surface of the upper wing and on the aft fuselage. (IHCA via de Cellis Borrell)



## CR 32 (early production)



## CR 32bis

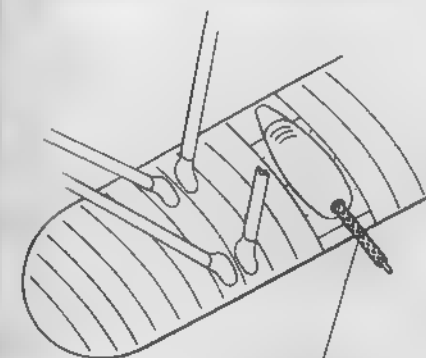


7.7MM Breda-SAFAT  
Machine Gun In  
Lower Wing

A 7.7MM Breda-SAFAT machine gun was mounted in the starboard lower wing of the CR 32bis. The wing guns increased the CR 32's firepower, but also degraded the fighter's maneuverability and speed. CR 32bis production totaled 283 aircraft between April of 1936 and July of 1937. (de Cellis Borrell)



## CR 32bis Lower Wing Gun



7.7MM Breda-SAFAT  
Machine Gun



(Above) Comandante Joaquin Garcia Morato, the leading air ace of the Spanish Civil War, stands beside the tail of his CR 32. The tail is adorned with the emblem of Morato's *La Patrulla Azul* (Blue Patrol). Three diving white birds are on a light blue disc bordered in medium blue. The medium blue words on the bottom of the emblem read VISTA, SUERTE Y AL TORO (A GLANCE, LUCK, AND AT THE BULLS). (Juan Arrees Cerda via de Cells Borrell)



(Above) Aircraft 3-57 is a CR 32 assigned to *La Patrulla Azul* (Blue Patrol), *Grupo 2-G-3* at Zaragoza in April of 1937. The fighter's upper surfaces are camouflaged with green and red-brown mottling on a sand base. The red yoke and arrows emblem of the Falangist (fascist) movement is on the black fuselage disc. The Spanish Nationalist forces assigned the CR 32 the type code number 3. (IHCA via de Cells Borrell)



(Below) Three CR 32s assigned to 25<sup>a</sup> Squadriglia, XVI Gruppo Caccia 'Cucaracha' (Cockroach) fly in formation during the battle of Brunete in July of 1937. The lead aircraft displays white group commander's markings on the black fuselage disc. The XVI Gruppo Caccia insignia is displayed on a white triangle behind the cockpits. Individual aircraft numbers are displayed ahead of the cockpit. (SMA)



(Below) Two XVI Gruppo 'Cucaracha' CR 32s peel away from each other and their formation. The rear aircraft has a replacement port aileron - indicated by the lack of white markings. Three black stripes are painted beside the white cross on the wingtips, with the outermost section in white. (SMA)

(Above) Major Aldo Remondino flew this CR 32 while commander of XXIII Gruppo 'Asso di Bastogni' at Escatron in August of 1938. The group emblem is painted just behind the cockpit. The black fuselage disc has white command markings. A canvas sheet has been secured to the aft fuselage in front of the tail. (Cerdeja via de Cells Borrell)

(Below) Five CR 32s of XVI Gruppo maintain formation above the clouds during a mission against the Spanish Republicans. This unit was nicknamed 'Cucaracha' (Cockroach) possibly by Moroccan troops who saw a resemblance between the insect and the CR 32. A fully-loaded CR 32 could reach 10,000 feet (3048 m) in five minutes and 25 seconds. (SMA)







HA-132-L (a Hispano-Suiza manufactured CR 32quater) number 260 sits in a hangar in Nationalist-held Spain. The sand and green upper surface camouflage was extended to the propeller blades on this aircraft. Hispano-Suiza manufactured 100 HA-132-L 'Chirris' for the Spanish Air Force. (de Cella Borrell)

Maintenance personnel service CR 32 No. 20, assigned to 20<sup>a</sup> Squadriglia, XXIII Gruppo in Spain. The engine access panel and upper wing fuel tank fairing have been removed to allow servicing of these areas. A hand-held camera is visible in the foreground. (SMA)



This CR 32 (3-61) was flown by Capt Angel Salas, commander of 2<sup>a</sup> Escadrilla, Grupo 2-G-3, at Verano during 1937. The words BERMUDEZ PRESENTE are painted in black on the fuselage. The black fuselage disc includes the red Falangist emblem, while the insignia of La Patrulla Azul (Blue Patrol) is on the vertical stabilizer. (IHCA via de Cella Borrell)

A Republican pilot poses in front of a captured CR 32 that has been repainted in Republican colors. This color scheme consisted of olive green upper surfaces over light blue undersurfaces with red wingtips and rear fuselage band. (IHCA via de Cella Borrell)



## The CR 32 in the Soviet Union

One FIAT CR 32bis was captured by Republican forces during the Spanish Civil War and sent to the Soviet Union in 1937. This aircraft flew simulated dogfights against a Polikarpov I-15 — one of the CR 32's opponents in Spain — at the Scientific Research Institute of the (Soviet) Air Forces. The evaluation demonstrated the Italian fighter's inferiority in time-to-climb and maneuverability. The Soviets also found taking off in the CR 32bis to be difficult, and high pilot skills were required to perform such aerobatic maneuvers as the 'split S' compared to the I-15. The Italian aircraft demonstrated a more superior armament than its Soviet adversary did. This advantage allowed CR 32bis pilots to engage I-15s at a greater range than was possible with the Soviet fighter. The Soviet test pilots found the CR 32bis' advantage impossible to realize during combat due to that aircraft's inferior speed and time-to-climb.

## The CR 32 in Austrian Service

The Austrian Federal Ministry of National Defense ordered 45 CR 32bis aircraft at the beginning of 1936. These fighters were used to equip a new fighter wing, *Jagdgeschwader II*. The wing was based at Wiener Neustadt and consisted of three squadrons: *Jagdstaffeln 4/II*, *5/II*, and *6/II*. The CR 32s were impressed into Luftwaffe service upon the German *Anschluss* (Annexation) of Austria on 13 March 1938. *Jagdgeschwader II* was redesignated *I Gruppe/Jagdgeschwader 138* at Aspern, however, the CR 32bis could not be integrated into the Luftwaffe as front line fighters due to their incompatibility with existing German equipment. Following brief service as fighter trainers, the 36 remaining CR 32bis fighters were sold to Hungary.

CR 32bis (Nr. 147) was repainted in German markings after the *Anschluss* (Annexation) of Austria on 13 March 1938. The venturi tube under the windshield provided input to the cockpit's turn and bank indicator. The black swastika on the tail is mounted on a white circle set in a red band. The wing machine guns have been removed from this aircraft. (Vaclav Simecek)



This CR 32bis (Nr. 418) was assigned to *Jagdgeschwader* (Fighter Wing) II of the Austrian Air Force. Austrian aircraft were finished in silver dope and natural metal with wing struts painted black. National markings on the rudder and fuselage are red and white, and the stripe ahead of the cockpit is in red. Austria received 45 CR 32bis fighters during 1936. (Höfling)

This ex-Austrian CR 32bis nosed over on landing at a Luftwaffe training school, damaging the starboard wing tip and propeller. The aircraft uppersurfaces are camouflaged in black green (RLM 70/FS34050) and dark green (RLM 71/FS34079). The front of the upper wing fairing, however, remains in natural metal. The wing machine guns have also been removed from this aircraft. (Reisinger)



## The CR 32 in World War Two

The CR 32 was the largest single fighter aircraft type in the *Regia Aeronautica* (RA) when Italy entered World War Two on 10 June 1940. The 294 machines — more than one quarter of Italy's fighter strength — equipped eight *Gruppi* (Groups) and four *Squadriglie* (Squadrons) in Italy, Albania, Libya, Italian East Africa, and Rhodes in the Aegean Sea. The RA's other 368 fighters consisted of FIAT CR 42s, FIAT G 50s, and Macchi MC 200s.

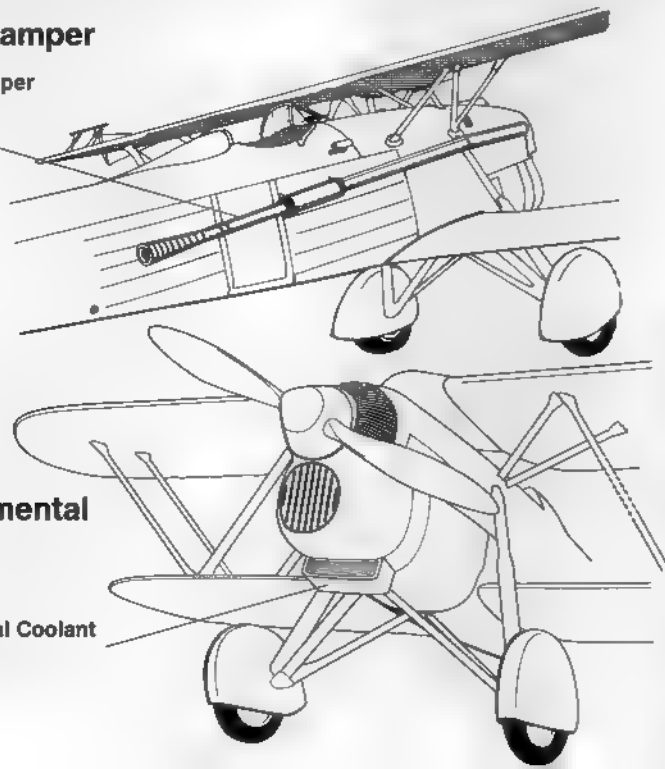
The RA's basic tactical unit was the *Stormo* (Wing), composed of two *Gruppi*. Each *Gruppo Caccia* (Fighter Group) consisted of three *Squadriglie*, equipped with six to nine aircraft. There were also several *Autonoma* (Independent) groups and squadrons in the RA.

The first Regia Aeronautica CR 32s to see action in World War Two were the aircraft of 50° *Stormo Assalto* (50th Assault Wing) in Libya. On 11 June 1940 the wing's CR 32s shot down two Royal Air Force (RAF) Bristol Blenheim bombers attacking the strategic port city of Tobruk. British and Italian fighters met for the first time three days later over Fort Capuzzo, when a CR 32 was shot down by a Gloster Gladiator. The CR 32s were escorting Caproni Ca 310 bombers when they were attacked by the RAF fighters, which also brought down one of the bombers. The Italians countered on 14 June when *Capitano* (Captain) Lucchini shot down a Gladiator over Buq Buq.

The CR 32 units stationed in Libya and Italian East Africa — Abyssinia (Ethiopia), Eritrea, and Italian Somaliland — were primarily equipped with the CR 32quater. These aircraft were equipped with a supplemental radiator to provide increased engine cooling under desert conditions. Most of these CR 32s were also fitted with racks under the fuselage for bombs weigh

### CR 32 Flame Damper

Exhaust Flame Damper  
(Both Sides)



### CR 32 Supplemental Radiator

Supplemental Coolant Radiator

ing up to 220.5 lbs (100 kg). These aircraft were employed in close air support missions and proved particularly useful in attacking British armored vehicles. Few CR 32s, however, were equipped with two-way radios and this limited their ability to respond to changing tactical situations. The British offensive in December of 1940 routed the Italians in North Africa and annihilated the CR 32s stationed there.

The CR 32s of 410° and 411° *Squadriglie* in Italian East Africa flew fighter, assault, and reconnaissance missions against the advancing British forces during the first half of 1941. Pilots of 410° *Squadriglia* claimed 14 British aircraft shot down by mid-April, when the Italians in East Africa were reduced to one operational CR 32.

While the fighting in Africa took place, other *Regia Aeronautica* CR 32s saw action over the Mediterranean Sea and the Greek Albanian Front. Beginning on 1 June 1940, aircraft of 30° *Gruppo*, based at Alghero on Sardinia, defended the port of Cagliari and flew bomber escort and maritime attack missions. These CR 32s were replaced with FIAT CR 42s beginning in January of 1941. Two squadrons of 160° *Gruppo Autonomo* were stationed in Albania — occupied by Italy during March of 1939 — and flew against Greek aircraft from October of 1940 until early 1941.

CR 32s and G 50s assigned to 2° *Gruppo* operated from Grottaglie and Bari in southeast Italy. These fighters patrolled the lower Ionian Sea and the Italian coastline. Four CR 32s were assigned as night fighters with 20° *Gruppo* in defense of Rome before being reassigned to 21° *Gruppo* of 51° *Stormo* at Guidonia on 13 June 1940. On 11 September this group was transferred to 52° *Stormo* and sent to the Greek-Albania Front.

By May of 1941 the remaining RA CR 32s were relegated to fighter training duties, a role they performed up to the Italian Armistice of 3 September 1943.

The main wheel fairings have been removed from CR 32 GRO-86. *Regia Aeronautica* CR 32s were camouflaged dark green (FS 34096) and sand (FS33481) on the upper surfaces, with light gray (FS36373) undersurfaces in 1938. The rudder is striped green (forward), white, and red from 1938 until the summer of 1940. The lettering on the fuselage is black. (Punka)







(Above Left) A camouflaged CR 32 is parked in front of other CR 32s at an Italian air base early in World War Two. The front propeller blades remained in natural metal, while the back of the blades was painted flat black to eliminate glare. The Italian insignia on the wings consisted of three fasces on a white disc trimmed in black. The Italian upper surface camouflage of dark green and sand wrapped around the leading edges of the wings and horizontal tail surfaces. (Punka)



(Above) An Italian pilot stands by the starboard wing of GRO-82, a CR 32 employed for training purposes, at Grottaglie in southern Italy. Another man sits in the cockpit. The fasces insignia displayed on the fuselages consisted of a light and dark brown bundle of rods around a silver forward-facing ax blade on a blue field. A pitot tube for feeding air to the cockpit's airspeed indicator is mounted on the forward interplane strut. (Punka)

(Left) A CR 32 parked in front of Savoia Marchetti SM 84 bombers displays the white cross which replaced the tricolored rudder stripes on Italian aircraft in the summer of 1940. The white rear fuselage band was added that fall to provide rapid recognition of Italian aircraft. The entry step on the CR 32's lower fuselage assisted pilots in entering and exiting the aircraft. (SMA)

The CR 32 in Hungarian Service

Hungary — forbidden to have an air force following its defeat in World War One — purchased 12 unarmed FIAT CR 20bis fighters in 1931. These aircraft, and four CR 20B trainers that soon followed, were given Hungarian civil registrations. The CR 20s were assigned to I. Meteorological Group, the cover name for the 1/1. vadászszázad (Fighter Squadron) based at Szombathely in western Hungary. During 1934 these fighters were armed with two Hungarian-made 7.92MM 26/31 M. GKH type Gebauer machine guns.

Following the signing of the Rome Protocol with Italy in 1935, the Magyar Légügyi Hivatal (Hungarian Aviation Department) ordered 26 CR 32s and 26 more the following year. The 52 aircraft arrived in Hungary between 23 April and 2 December 1936. These CR 32s were also armed with two 7.92MM Gebauer machine guns. The fighters were assigned to I. Meteorological Group, which was moved from Szombathely to Székesfehérvár during 1936. The group was composed of three sub-groups (squadrons): 1/1. 'Ijász' (Archer); 1/2. 'Ludas Matyi' (Matty the Goose Boy, a Hungarian folklore character), and 1/3. 'Puma' (Mountain Lion).

On 22 August 1938 an agreement was signed in Bled, Yugoslavia by Hungary and the 'Little Entente' states — Czechoslovakia, Rumania, and Yugoslavia. This agreement recognized Hungary's right to rearm itself in exchange for Hungary's promise not to forcibly reclaim territory lost under the 1920 Peace Treaty of Trianon. The now legal Royal Hungarian Air Force (RHAF) first went on war alert during the Munich Crisis in October of 1938. On 23 March 1939 — following Germany's seizure of Bohemia and Moravia — Hungary reoccupied the easternmost Slovak province of Upper Hungary (Ruthenia). Slovak aircraft attacked the advancing Hungarian troops that day, prompting the RHAF into action the next day.

CR 32s of 1/1. 'Ijász' and 1/2. 'Ludas Matyi' squadrons engaged Slovak Avia B 534 fighters twice over Ruthenia and Hungary on 24 March. During the morning nine 'Ijász' aircraft encountered six B 534s over Igló (now Spišská Nova Ves, Slovakia). The Hungarians damaged three Slovak aircraft — one of which was destroyed on landing and another captured after landing in Hungarian territory — without any loss. Nine FIATs from 'Ijász' squadron attacked six B 534s and three Letov S 328 bombers over Szobránc. The CR 32 pilots claimed seven Slovak aircraft shot down (of which five were confirmed) for no loss on their side. The conflict ended with the signing of a 'Border Treaty' by Hungary and Slovakia on 28 March 1939. By the end of that year, 1/3. 'Puma' squadron relinquished its CR 32s and was redesignated 2/2. squadron, while 1/1. was renamed 'Dongó' (Bumble Bee).

Hungary allowed German forces to attack Yugoslavia from Hungarian territory on 4 April 1941. One week later, Hungarian troops advanced into northern Yugoslavia. CR 32s of 1/1. and 1/2. squadrons assisted other RHAF units in supporting friendly forces during this brief campaign. Two CR 32s were lost and another machine was damaged in the fighting before Yugoslavian forces facing Hungary surrendered on 13 April.

On 22 June 1941 — the day Germany invaded the Soviet Union — 1/1. was based at Ungvár (now Ushgorod, Ukraine) and 1/2. was located at Felsőábrány. These units were responsible for defending the industrial cities of Miskolc and Diósgyőr. At 1258 hrs on 26 June, three unknown twin-engine aircraft bombed the northern Hungarian city of Kassa (now Košice, Slovakia). All available CR 32s were scrambled to intercept, however, the bombers escaped without loss. Hungary's War Cabinet identified the attacking aircraft as Soviet, and declared war on the Soviet Union that day. The obsolete CR 32s were soon relegated to fighter training duties in the RHAF.



During 1938 the MKHL (Royal Hungarian Air Force) experimented with winter camouflage on a CR 32 at Várpalota. White patches were painted on the dark green upper surfaces and the front of the propeller blades. The white portions of the wing national insignia were overpainted with light gray, while the red (outer) and green portions remained unchanged. Maintenance crewmen are at work around the CR 32. (Kovács)

| Royal Hungarian Air Force<br>CR 32 Units    |             |                             |
|---|-------------|-----------------------------|
| Squadron                                    | Home Base   | City Defense Responsibility |
| 1/1. 'Dongó'<br>(Bumble Bee)                | Felsőábrány | Ózd-Diósgyőr                |
| 1/2. 'Ludas Matyi'<br>(Matty the Goose Boy) | Felsőábrány | Ózd-Diósgyőr                |
| 2/1. 'Mackó'<br>(Teddy Bear)                | Nyíregyháza | Debrecen                    |
| 2/2. 'Puma'<br>(Mountain Lion)              | Nyíregyháza | Debrecen                    |



(Below) A pilot prepares to board a CR 32 assigned to 1/4. vadászzásad 'Teve' (Camel) of the Royal Hungarian Air Force. Aircraft 61 appears in the pre-war silver finish applied to Hungarian CR 32s. Aircraft numbers are black. Hungary received 52 CR 32s from Italy during 1936 and 36 ex-Austrian CR 32bis fighters from Germany two years later. (Punka)

(Above) CR 32 (V.157) was assigned to 1/5. vadászzásad (Fighter Squadron) 'Dongó' (Bumble Bee) of the Royal Hungarian Air Force. The aircraft is camouflaged with dark green uppersurfaces. The number V.157 on the aft fuselage is in black with yellow shadow, while the squadron insignia is placed just in front of the cockpit. (Kovács)

(Below) The 1/2. vadászzásad (Fighter Squadron) 'Ludas Matyi' (Matti the Goose Boy) insignia appears on the forward fuselage of a CR 32. Matti the Goose Boy was a character in Hungarian folklore. This squadron was assigned to 1. Vadászezred (1st Fighter Regiment) and operated from Veszprém during the brief Ruthenian Conflict with Slovakia in March of 1939. (Punka)





(Below) Two Royal Hungarian Air Force pilots shake hands beside a 1/2. 'Ludas Matyi' CR 32 during 1941. The squadron emblem was applied to the forward fuselage, while a yellow Eastern Front identification band was painted just behind the cockpit. At the end of 1939, aircraft V-135 was transferred from 1/3. 'Puma' to 1/2. 'Ludas Matyi.' (Punka)

(Above) CR 32 (V-135) was assigned to 1/3. vadászszázad 'Puma' (Mountain Lion) at Székesfehérvár, Hungary during 1939. The aircraft's upper surfaces are camouflaged in dark green (FS34096), dark brown (FS30109), and medium gray (FS36165). Tail wheel and compressed air dollies are parked in the foreground. (Punka)

(Below) An apparently amused ground crewman reads a newspaper while seated on the starboard wheel spat of a 1/5. 'Dongó' Squadron CR 32. A series of 42 cooling fins were mounted over the oil tank, which was located behind the propeller. Cooling air for the oil and water radiators was ducted through the chin intake below the propeller spinner. The water radiator is left in natural metal. (Kovács)







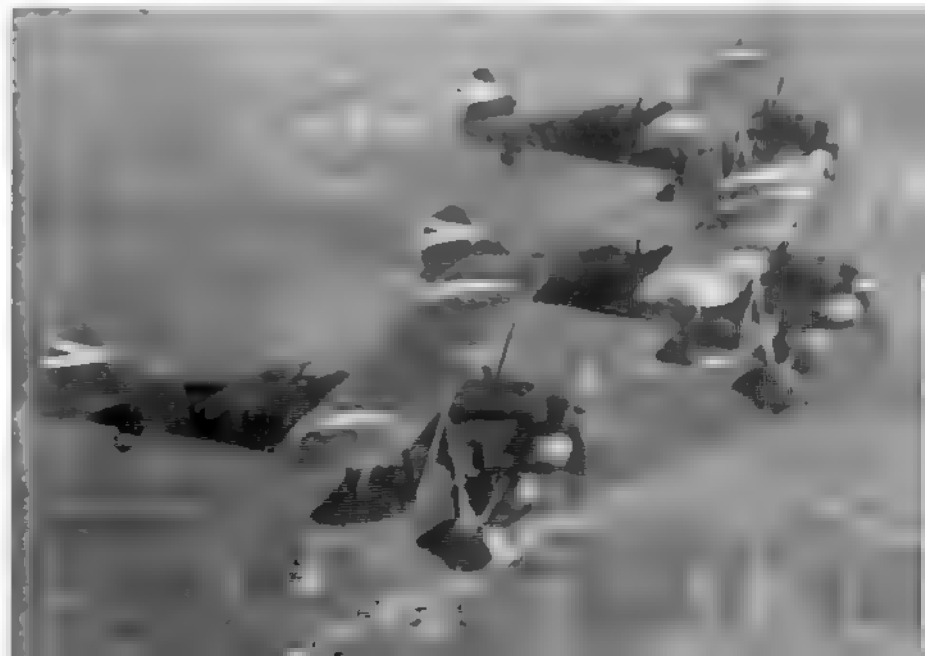
CR 32 (V.156) is parked in front of a hangar at a Hungarian maintenance facility. The aircraft is camouflaged in dark green, dark brown and medium gray uppersurfaces. The fuselage code is black. The V on the fuselage stood for  *vadész* (fighter). The 'benches' appearing on the upper wing are outriggered aileron balance tabs. (Punka)

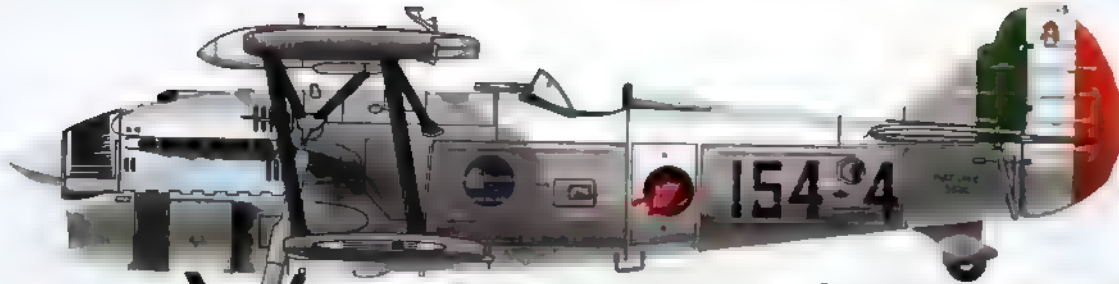
CR 32 (V.102) overturned at a Hungarian airfield, causing damage to the top of the rudder and upper wing. This aircraft wears the insignia of 1/1. 'Ijász' (Archer) Fighter Squadron. This CR 32 is missing the national insignia on its tail. (Punka)



This Hungarian CR 32 displays the Warren Truss struts supporting the wings and the N-type cabane struts connecting the upper wing to the fuselage. The last pilot operating this aircraft left the elevator lowered and the rudder turned to starboard. (Punka)

Three MKHL (Royal Hungarian Air Force) CR 32s fly in formation prior to 1941 – indicated by the lack of a yellow fuselage band. The Hungarian insignia – a chevron in red (outside), white, and green – was adopted on 1 September 1938. This chevron was used until 1 March 1942. (Punka)





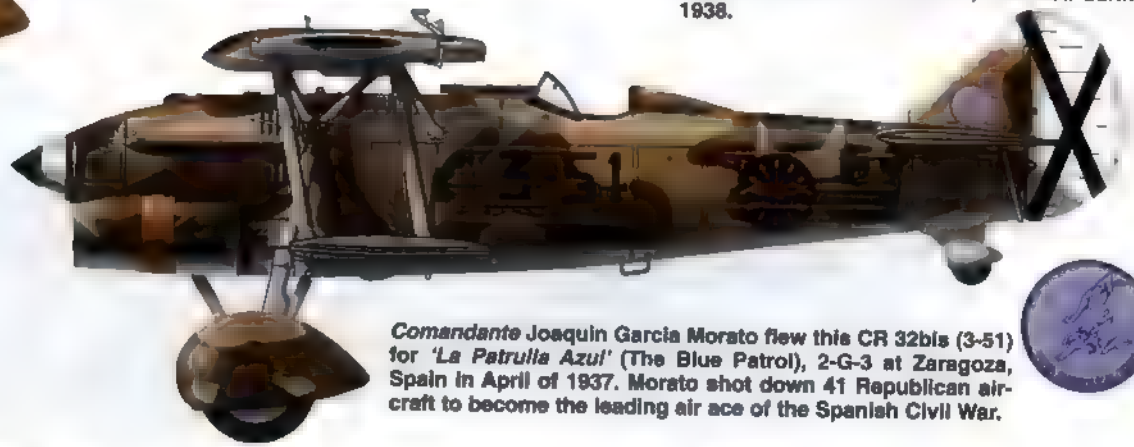
CR 32 (154-4) was a flight demonstration aircraft assigned to 154 Squadriglia, 4° Stormo 'Diavoli Rossi' (Red Devils) in 1936. The fuselage fasces and the House of Savoy emblem on the rudder were standard markings on Italian military aircraft.



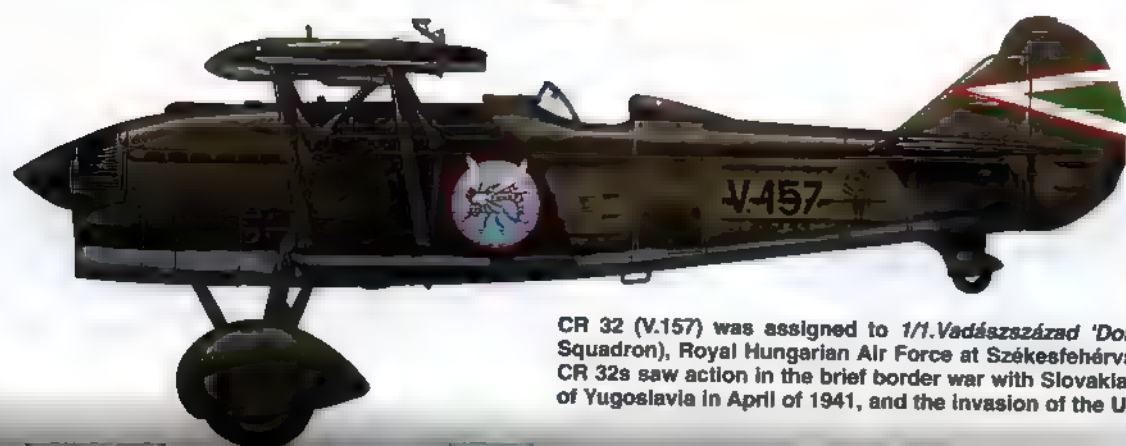
Austrian Air Force CR 32bis Nr. 147 was operated by Jagdgeschwader II (II Fighter Wing) prior to Austria's annexation by Germany in 1938. After the annexation, these fighters saw brief service with the German Luftwaffe before being sold to Hungary.



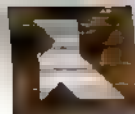
CR 32 (7) was assigned to 10° Gruppo Autonomo Caccia della Baleari (10th Independent Fighter Group of the Balearics) and was based at San Juan, Mallorca during 1938.



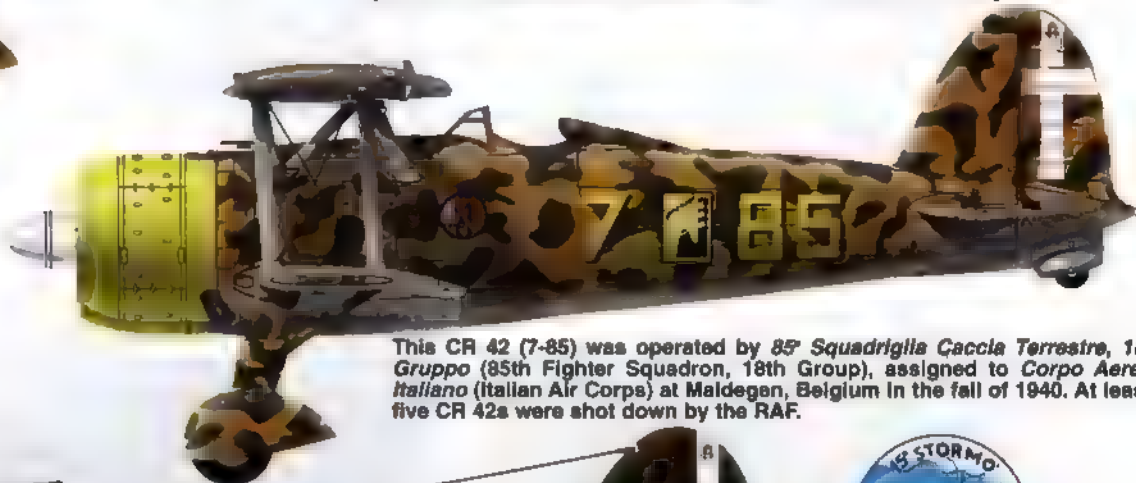
Comandante Joaquin Garcia Morato flew this CR 32bis (3-51) for 'La Patrulla Azul' (The Blue Patrol), 2-G-3 at Zaragoza, Spain in April of 1937. Morato shot down 41 Republican aircraft to become the leading air ace of the Spanish Civil War.



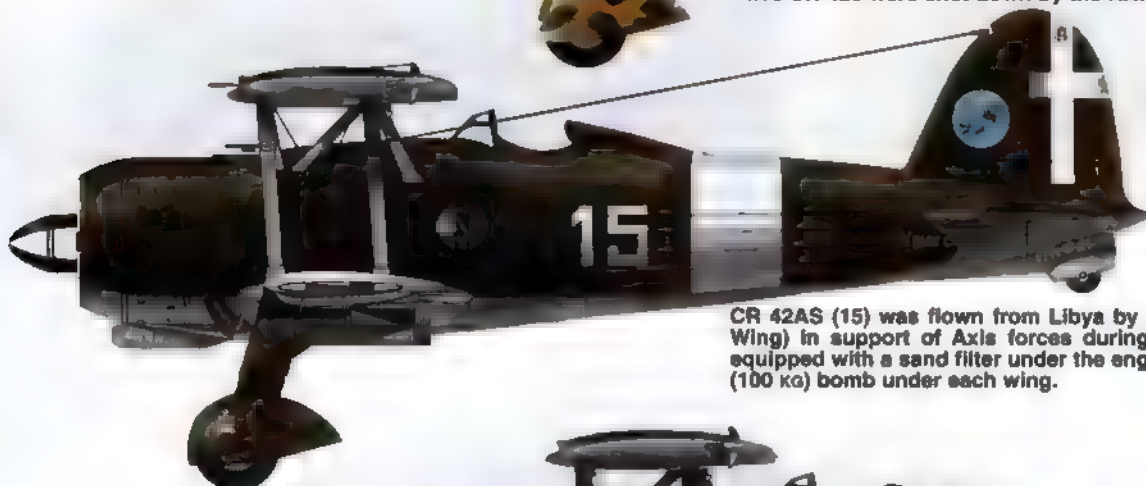
CR 32 (V.157) was assigned to 1/1. Vadászszázad 'Dongó' (1/5. Bumble Bee Fighter Squadron), Royal Hungarian Air Force at Székesfehérvár, Hungary in 1939. Hungarian CR 32s saw action in the brief border war with Slovakia in March of 1939, the invasion of Yugoslavia in April of 1941, and the invasion of the USSR in June of 1941.



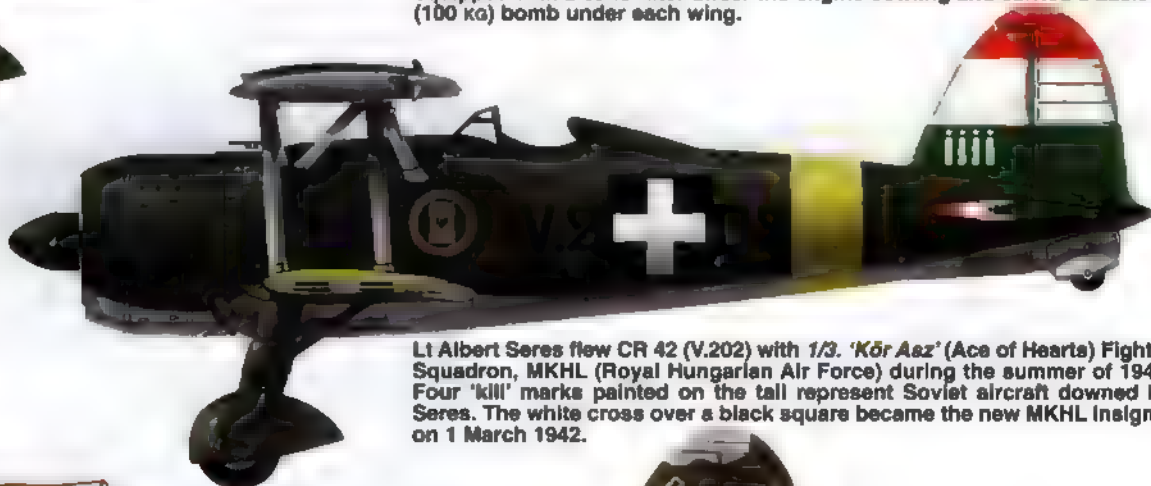
CR 42 Falco (21) was assigned to *3/II. Groupe de Chasse* (3rd Squadron, II. Fighter Group), Belgian Air Force at Nivelles, Belgium in May of 1940. The squadron emblem was the *cocotte blanc* an aircraft on 10 May 1940.



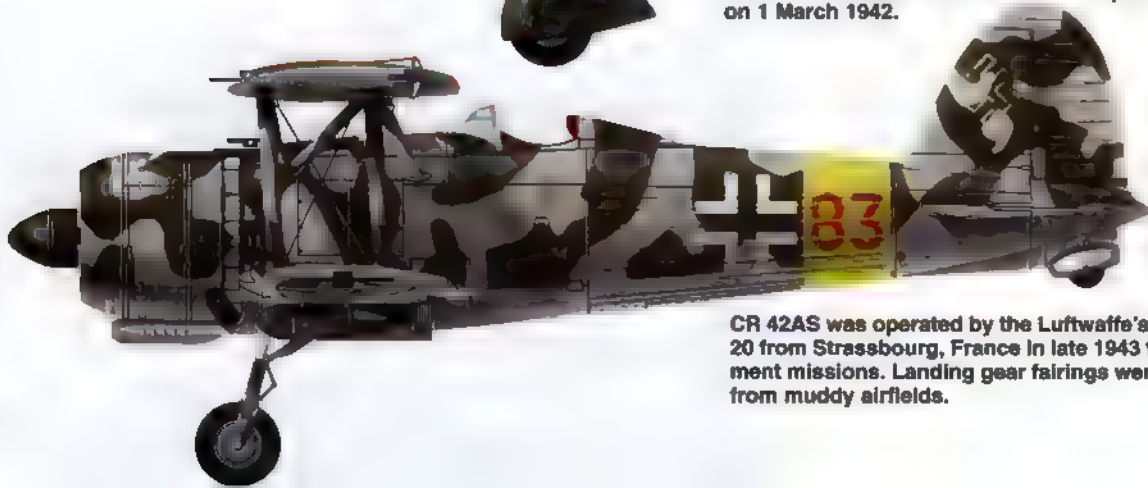
This CR 42 (7-85) was operated by *85<sup>a</sup> Squadriglia Caccia Terrestre*, 18<sup>o</sup> Gruppo (85th Fighter Squadron, 18th Group), assigned to *Corpo Aereo Italiano* (Italian Air Corps) at Maldegem, Belgium in the fall of 1940. At least five CR 42s were shot down by the RAF.



CR 42AS (15) was flown from Libya by *15<sup>o</sup> Stormo Assalto* (15th Assault Wing) in support of Axis forces during the fall of 1942. The aircraft is equipped with a sand filter under the engine cowling and carried a 220.5 lb (100 kg) bomb under each wing.



Lt Albert Seres flew CR 42 (V.202) with *1/3. 'Kör Aaz'* (Ace of Hearts) Fighter Squadron, MKHL (Royal Hungarian Air Force) during the summer of 1942. Four 'kill' marks painted on the tail represent Soviet aircraft downed by Seres. The white cross over a black square became the new MKHL insignia on 1 March 1942.



CR 42AS was operated by the Luftwaffe's *Nachtschlachtgeschwader* (NSG) 20 from Strassbourg, France in late 1943 for anti-partisan and night harassment missions. Landing gear fairings were removed to facilitate operations from muddy airfields.

## FIAT CR 40/CR 40bis

During the early 1930s the Italian Air Ministry examined the use of air-cooled radial engines in fighter aircraft. Such engines were less vulnerable to battle damage than liquid cooled engines used by the CR 30 and CR 32. FIAT's response to this suggestion was to develop the **CR 40**, a derivative of the CR 32 powered by a 550 hp Bristol **Mercury IVA** radial engine. *Ingegnere* (Engineer) Celestino Rosatelli developed a new gull wing intended to improve pilot visibility, while retaining the CR 32's fuselage, tail, and undercarriage. The dural spars, ribs, and false ribs were covered with sheet metal on the forward fuselage and cloth elsewhere on the airframe. This aircraft retained the CR 32's armament of two fuselage mounted 12.7mm Breda-SAFAT machine guns with 600 rounds of ammunition per gun.

The CR 40 prototype (M.M. 202) was completed in early 1934 and flight tests under *Comandante* Francesco Brack-Papa began at the end of March. The CR 40's top speed of 235.6 mph (379.2 kmh) was only slightly faster than the CR 32's 233 mph (375 kmh). Additionally, the new CR 40 possessed inferior climbing performance and stability compared to the CR 32. The lone CR 40 built crashed in 1935.

The **CR 40bis** retained the CR 40's airframe while substituting a 700 hp FIAT **A.59R** engine. This nine-cylinder radial engine was based on the Pratt & Whitney Hornet SDG, however, the FIAT powerplant generated nearly 200 hp more than the American engine. The single CR 40bis flew a series of engine test flights between 1936 and 1937, but no further CR 40bis' were built.

## FIAT CR 41

Another forward step in the experimental radial engined CR series was the **CR 41**. This fighter used a modified CR 40 airframe powered by a 729 hp Gnome-Rhone **Mistral Major 14Ksf** engine. This 14-cylinder, double row engine was manufactured under license by FIAT, and was regarded as the best engine in its category. The CR 41 also featured a three-bladed propeller, wing-mounted machine guns, and an enlarged vertical stabilizer and rudder.

The CR 41 made its first flight in 1936, a few days after the debut of the CR 40bis. Test flights were flown with the CR 41 employing two-bladed and three-bladed propellers. This aircraft reached a maximum speed of 248 mph (399.1 kmh). Despite this performance increase, the CR 41 was cancelled that year due to the development of the CR 42 underway in the Technical Office of *Ingegnere* Rosatelli.

The **CR 42 prototype** (M.M. 4265) first flew on 23 May 1938. This aircraft was retrofitted to production standard by incorporating a fixed tail wheel and shortened exhaust pipes. The **CR 42** is finished in overall silver dope and natural metal, with green-white-red rudder stripes. The crest of the House of Savoy – Italy's royal family – appears on the top of the white rudder stripe. The type designation and serial number under the horizontal stabilizer are in white with black trim. (Punka)





# FIAT CR 42 Falco

Test pilot *Comandante* Valentino Cus took the FIAT CR 42 prototype up on its first flight on 23 May 1938. After the first three hours of flight testing, Cus described the new fighter as "the ultimate pilot's aeroplane." The test program was conducted at a rapid pace with minor problems being rapidly solved. Some revisions included rearranging instrumentation and ancillary controls, replacing the retractable tail wheel with a fixed unit, and shortening the exhaust pipes.

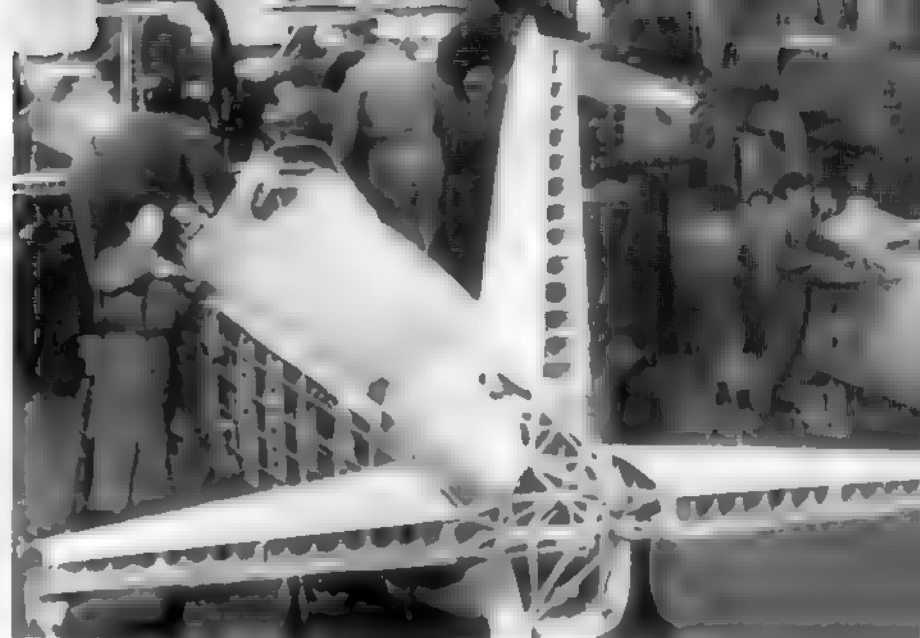
Following completion of the acceptance program, the *Ministero dell' Aeronautica* (Italian Air Ministry) awarded FIAT an initial production contract for 200 CR 42s. This procurement plan allowed for the re-equipment or establishment of three *Gruppi* (Groups) and four *Stormi* (Wings) with the new fighter.

Several foreign technical missions arrived in Turin — where the CR 42 tests took place — during the summer of 1938. These delegations from Bolivia, Brazil, Bulgaria, Hungary, Japan, and Portugal arranged for experimental flights using their own pilots. Their interest in the CR 42 was stimulated by the success of the earlier CR 32 in the skies over Spain.

The CR 42 Falco (Falcon) was powered by the new 846 hp FIAT A.74 R.C.38 radial engine. This twin-row engine was derived from Gnome-Rhone designs and drove a three-bladed FIAT-Hamilton 3D constant speed metal propeller. The engine turned the propeller at 2500 rpm for three minutes at maximum horsepower and was rated at 828 hp at 12,465 ft (3799.3 m).

The Falco's structure sesquiplane layout followed that of Rosatelli's earlier fighter designs,

Two 12.7mm Breda-SAFAT machine guns are installed in the fuselage of a CR 42 on the production line. The guns are mounted in front of the cockpit and above the ammunition magazine and synchronized to fire through the propeller disc. Each machine gun was fed with 400 rounds of 12.7mm ammunition. (Tanzi)



Workers assemble CR 42 fuselage sections at the FIAT plant in Turin, Italy. Aluminum skinning has been installed on the forward and upper fuselage areas and tail. Fabric has yet to be applied over the aft fuselage framing. The CR 42's fuselage structure employed manganese-molybdenum steel tubing. (Tanzi)

including the CR 32. The fabric-covered wings employed double spars and ribs made from light alloy and steel, with metal leading edge skins. The dural-framed ailerons were also covered in fabric and were installed only on the upper wing. The upper wing was constructed in two halves joined along the fuselage centerline to inverted-vee cabane struts, while the lower wing was attached to the bottom fuselage longerons.

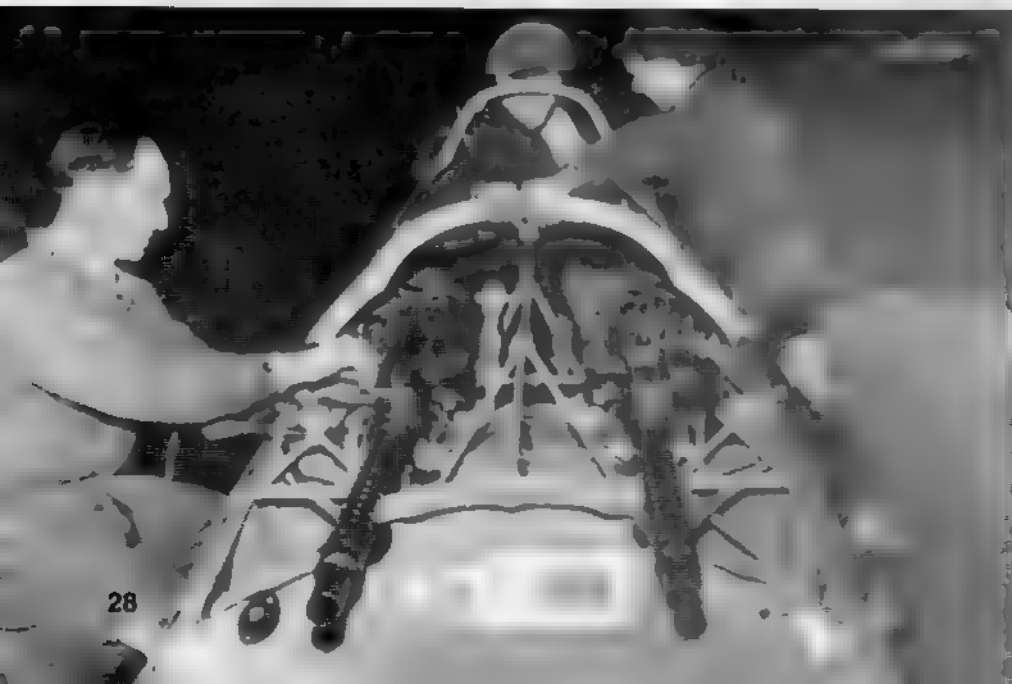
The fuselage structure consisted of triangulated framework built from manganese-molybdenum steel tubing. Light aluminum panels covered the forward fuselage to a point immediately behind the cockpit, the dorsal decking between the cockpit and tail, and the tail cone. The aft fuselage was covered in fabric. The tail surfaces employed duralumin framing with metal covering on the horizontal and vertical stabilizers. The rudder and elevators were covered in fabric with metal elevator tabs.

The undercarriage was attached to the main spar of the lower wing stub, and featured oleopneumatic dampers and compressed air brakes. Streamlined fairings covered the gear legs and wheels. Another fairing covered the fixed tailwheel.

Initial production CR 42s differed from the prototypes in a number of areas. These included a recontoured carburetor air intake lip, the introduction of small rocker arm blisters on the engine cowl, a redesign of the propeller control housing, and replacement of the prototype's retractable tailwheel with a fixed unit.

Fuel was contained in a 91 gallon (344.5 L) main tank installed behind the engine firewall. A supplemental 28.6 gallon (108.3 L) fuel tank was placed beneath the ammunition container.

The CR 42's armament consisted of two 12.7MM Breda-SAFAT machine guns installed in front of the cockpit and synchronized to fire through the propeller disc. Either or both of these





FIAT workers install the FIAT A.74 R.C.38 engine to a CR 42 at the factory. One worker crouched on the lower wing performs adjustments to the forward fuselage framing. The A.74 R.C.38 was a twin-row air-cooled radial engine capable of providing 846 horsepower. (Tanzi)

guns could be replaced with a 7.7MM Breda-SAFAT weapon. This replacement was performed at unit level to slightly reduce the aircraft's weight. The ammunition bins could accommodate up to 400 rounds per gun. A round expenditure counter was installed on the instrument panel and a San Giorgio Type B reflector gun sight was fitted. No radio was fitted for the pilot.

Various modifications were made to the CR 42s beginning in 1941. The first modification consisted of installing light bomb racks on aircraft at unit level. These racks could carry bombs weighing up to 220.5 lbs (100 kg). The ground attack role became an important factor in CR 42 operations in North Africa. This modified aircraft, also equipped with a sand filter under the engine cowling, was designated CR 42AS (*Africa Settentrionale*; North Africa). It was believed that some ground attack CR 42s were equipped with two 12.7MM machine guns or 20MM cannons under the wings, however, there is no evidence supporting this claim. Several CR 42s were modified with an internal auxiliary fuel tank for operations against Crete. These aircraft received the designation CR 42Egeo (*Aegean*).

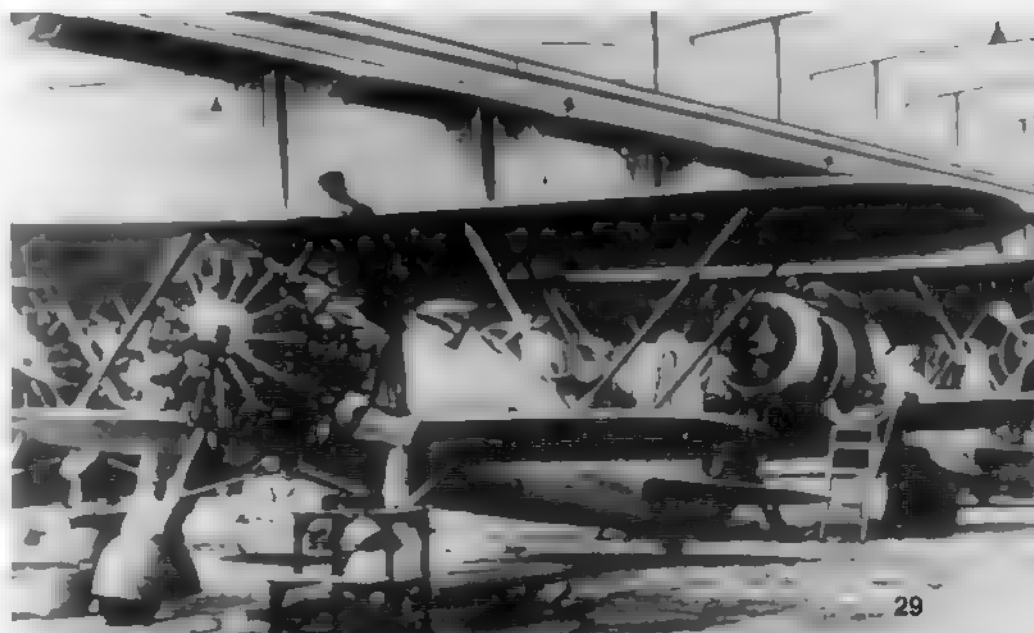
Another specialized version of the aircraft was the CR 42CN (*Caccia Notturna*; Night Fighter) for home defense duties. The CR 42CN was equipped with exhaust flame dampers, augmented instrumentation, and a two-way radio for night flying. This variant was also fitted with two small searchlights mounted beneath the lower wing. An airstream-driven generator, mounted on the upper wing center section, powered the lights.

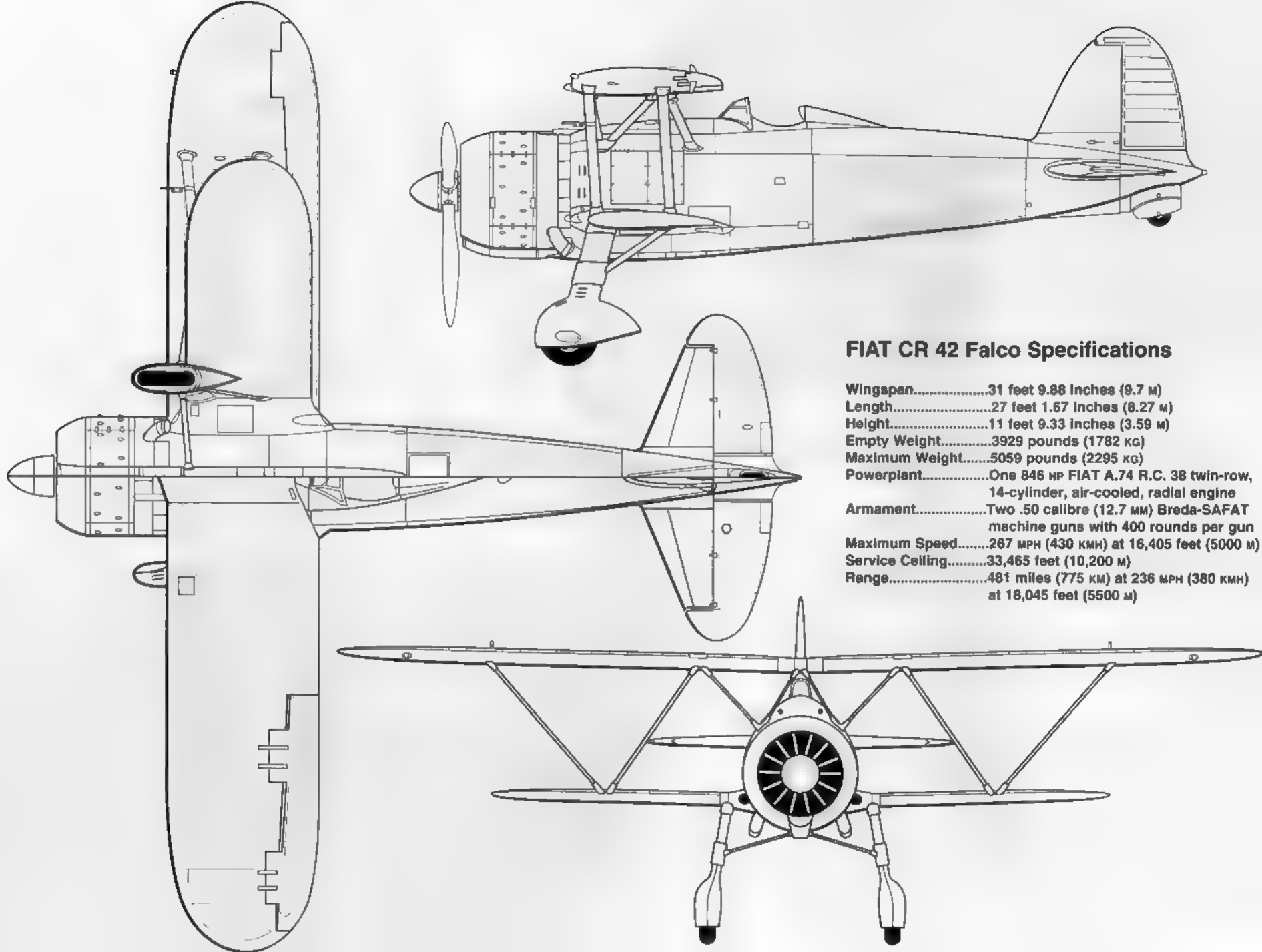
A total of 1768 CR 42 Falcos were produced for the *Regia Aeronautica* between February of 1939 and June of 1943. The vast majority of the Falcos manufactured were of the CR 42 day fighter version.

## CR 42 Production

| Serial Numbers       | Dates of Production      | No. Produced |
|----------------------|--------------------------|--------------|
| M.M. 4265-4464       | February–December 1939   | 200          |
| 4968-5058            | December 1939–March 1940 | 100          |
| 5510-5709            | March–August 1940        | 200          |
| 6248-6287            | September–October 1940   | 40           |
| 6288-6307            | October 1940             | 20           |
| 6903-6952            | October–November 1940    | 50           |
| 6963-7001            | August–September 1940    | 39           |
| 7002-7046            | December 1940            | 45           |
| 7048-7067            |                          | 20           |
| 7069-7107            |                          | 40           |
| 7109-7208            | February–March 1941      | 100          |
| 7459-7658            | March–September 1941     | 200          |
| 8467-8560            | September 1941–June 1942 | 94           |
| 8744-8793            |                          | 50           |
| 8844-8993            | February–July 1942       | 150          |
| 9125-9284            | July–October 1942        | 160          |
| 9768-9917            | November 1942–June 1943  | 150          |
| 9951-8999            | 1943                     | 48           |
| Werk Nr. 10001-10063 | 1943–1944                | 62           |

A worker standing on the lower wing works on the engine of a CR 42 in final assembly in Turin. The next aircraft in line has part of its cowling installed, while the others have full cowlings, propellers, and spinners in place. FIAT produced over 1500 CR 42s from 1939 to 1943. (Tanzi)





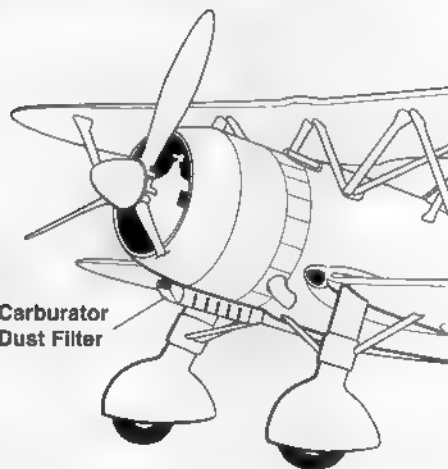
### FIAT CR 42 Falco Specifications

|                      |  |
|----------------------|--|
| Wingspan.....        | 31 feet 9.88 inches (9.7 m)  |
| Length.....          | 27 feet 1.67 inches (8.27 m)   |
| Height.....          | 11 feet 9.33 inches (3.59 m)   |
| Empty Weight.....    | 3929 pounds (1782 kg)  |
| Maximum Weight.....  | 5059 pounds (2295 kg)  |
| Powerplant.....      | One 846 hp FIAT A.74 R.C. 38 twin-row,<br>14-cylinder, air-cooled, radial engine |
| Armament.....        | Two .50 calibre (12.7 mm) Breda-SAFAT<br>machine guns with 400 rounds per gun    |
| Maximum Speed.....   | 267 MPH (430 kmh) at 16,405 feet (5000 m)  |
| Service Ceiling..... | 33,465 feet (10,200 m)   |
| Range.....           | 481 miles (775 km) at 236 MPH (380 kmh)<br>at 18,045 feet (5500 m)               |



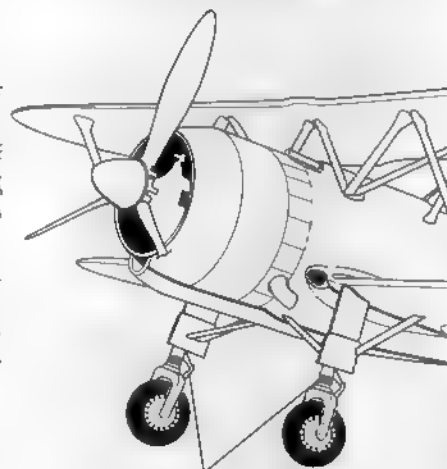
A carburetor sand filter was installed under the engine cowling of a CR 42AS (*Africa Settentrionale*; North Africa) for operations in North Africa. A smoke dispenser fitted under the lower wing allowed pilots to lay down smoke to cover friendly troop movements. (Punka)

## CR 42AS Dust Filter



Carburetor  
Dust Filter

## CR 42 Landing Gear with Fairings Removed



Landing Gear Fairings  
Removed



Armorers lift a 220.5 lb (100 kg) bomb up to the starboard bomb rack of a CR 42AS assigned to *164<sup>a</sup> Squadriglia*, *161<sup>o</sup> Gruppo Autonomo* in the Mediterranean. The lower main landing gear fairings were often removed from ground attack Falcos to facilitate maintenance. Oil cooler intakes were located in both wing roots. (Punka)

A CR 42AS is prepared for a ground attack mission in North Africa in 1941. The wheel fairings have been removed and a 220.5 lb bomb is mounted on the starboard bomb rack. The aircraft is camouflaged in dark green and dark brown with light gray undersurfaces. (Punka)

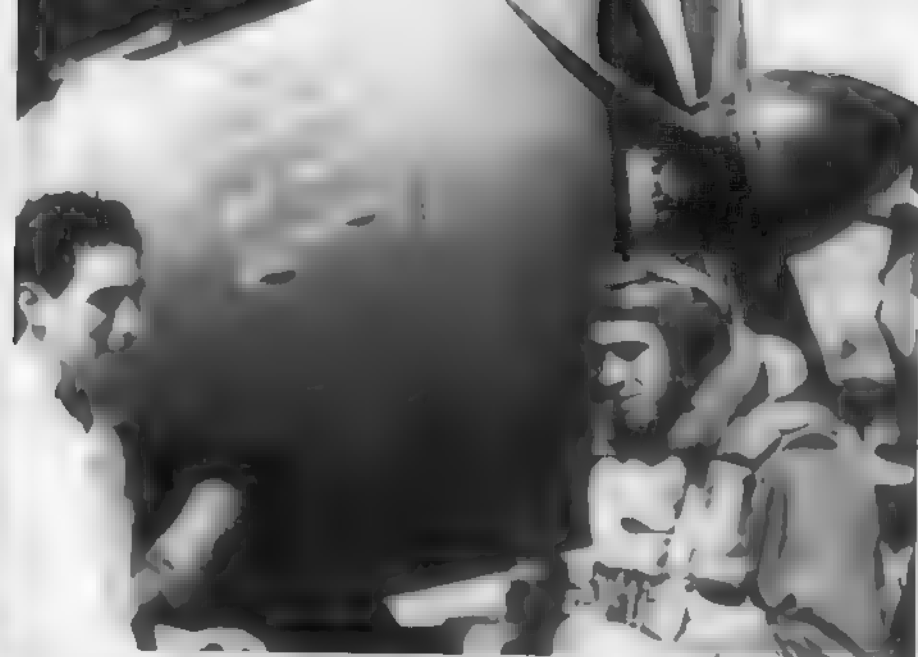






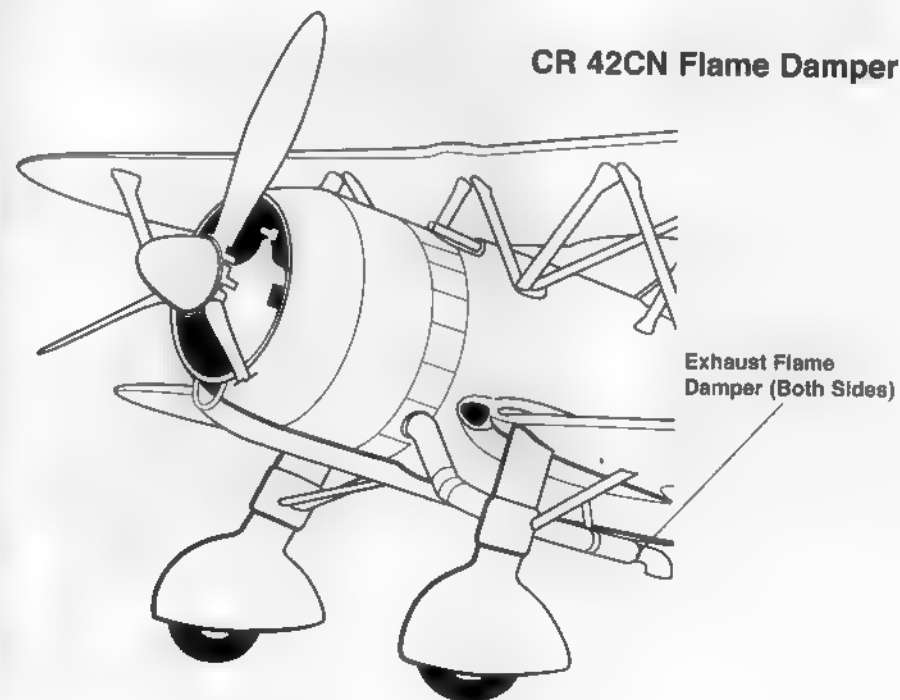
Capitano (Captain) Corrado Ricci boards his CR 42CN (*Caccia Notturna*; Night Fighter) (M.M. 7584) assigned to 300<sup>a</sup> Squadriglia, 167<sup>o</sup> Gruppo Autonomo at Ciampino airfield near Rome in 1942. A searchlight was carried under each wing of these night fighters. CR 42CNs of the 167th Independent Group were tasked with defending Rome and Naples. (LUCE)

Two CR 42CNs of 300<sup>a</sup> Squadriglia prepare to depart Ciampino airfield on a night intercept mission in 1942. A generator mounted on the upper wing center section provided electrical power for the underwing searchlights. The undersurface of the upper wing is painted black, while that of the lower wing remains light gray. (LUCE)



Capt Ricci poses with fellow pilots by the cowling of his CR 42CN at Ciampino on the outskirts of Rome. The inscription on the cowling reads "*Il la notte plu non posso dormire*" ("I can't sleep tonight"). The small blisters on the cowling provided clearance for the engine rocker arm covers. Ricci served as commanding officer of 167<sup>o</sup> Gruppo Autonomo during 1942. (LUCE)

## CR 42CN Flame Damper



## CMASA ICR 42

The concept of a seaplane version of the CR 42 was studied by FIAT at the end of 1938. The **ICR 42** or **CR 42 Idro** (Sea) was a twin-float catapult fighter employing local structural strengthening for the catapult and hoist points. Construction of the 'Idro' was entrusted to FIAT's subsidiary, CMASA (Costruzioni Meccaniche Aeronautiche S.A.) at Marina di Pisa. Two ICR 42 prototypes were completed by CMASA in 1940. Apart from the duralumin floats and the catapult and hoist point strengthening, the structure of the ICR 42 was identical to the standard CR 42. The floatplane retained the CR 42's two 12.7mm Breda-SAFAT machine guns.

Following completion of float trials at Marina di Pisa, one of the prototypes was sent to Vigna di Valle during 1941 for official flight tests. The ICR 42 reached a maximum speed of 258.5 mph (416 kmh), and climbed to 13,120 feet (3999 m) in 6 minutes 45 seconds. The *Ministero dell'Aeronautica* (Italian Air Ministry) ordered 40 ICR 42s, however the catapult fighter concept was soon regarded as outdated. This led to cancellation of the order, and no further ICR 42s were built.

## FIAT CR 42DB

During September 1939 the *Direzione Generale Costruzioni* proposed a CR 42 powered by a liquid-cooled, 1010 hp Daimler-Benz **DB601E** in-line engine replacing the standard FIAT A 74 air-cooled radial. This proposal resulted in the CR 42DB, which featured a redesigned forward and lower fuselage for the engine and cooling system. The engine mounting consisted of longitudinal supports connected with steel tubing. The DB 601E turned an Alfa Romeo three-bladed propeller with electrically adjustable pitch. A two-way radio was installed for the pilot's use. The German DB 601E engine was to have been produced under license by Alfa Romeo under the designation **RA 1000**.

The CR 42DB prototype (M.M. 469) began flight testing with *Comandante Cus* at the controls in March of 1941. The aircraft attained a level speed of 322 mph (518.2 kmh) and climbed to 19,680 feet (5998.5 m) in seven minutes during tests that summer. The CR 42DB was proposed for series production in the assault role; however, the *Ministero dell'Aeronautica* came to accept that the day of the biplane fighter was over and cancelled the CR 42DB after the prototype was built.

## FIAT CR 42B

During 1943 a number of CR 42s were modified into two-seat, dual control trainers. A longer engine mounting and aft fuselage resulted in a fuselage length increase of 12.6 inches (320mm) over the CR 42's fuselage. An instructor's cockpit with duplicate flight controls was added behind the regular CR 42 cockpit, which was used by the student. The two 12.7mm Breda-SAFAT machine guns with 300 rounds per gun were retained. Several **CR 42B** (*Biposto*, two-seat) trainers served with the *Aeronautica Militare* (post-war Italian Air Force) until 1950.



In an effort to improve performance, FIAT installed a Daimler-Benz DB601E engine in a CR 42. This installation required an extended forward fuselage to accommodate the inline engine, with a radiator placed under the nose. The sole CR 42DB prototype (M.M. 469) flew during 1941. The Italian Air Ministry realized that the day of the biplane fighter was over and cancelled production of the CR 42DB. (Punka)

An overall silver CR 42B trainer is parked near a hangar near Milan, Italy in the late 1940s. The black code Z-1 ahead of the Italian roundel refers to the *First Zona Territoriale* (Territorial Zone), which included Milan. The CR 42B fuselage was lengthened by 12.6 inches (320 mm) to accommodate a second cockpit for the instructor. (Punka)



## The CR 42 in World War Two

Over 300 FIAT CR 42s equipped nine *Regia Aeronautica Gruppi* (Groups) when Italy entered World War Two on 10 June 1940. The new fighter made its operational debut during the 14-day Italian campaign in southern France. CR 42s of 23<sup>a</sup> and 151<sup>a</sup> Gruppo escorted FIAT BR 20 bombers attacking the French air bases of Hyères and Fayence on 13 June. The Italian fighters damaged 20 French aircraft on the ground and destroyed one fighter in the air with no losses to themselves. Two days later, CR 42s shot down three Bloch 152 and five Dewoitine D 520 fighters over the Cote d'Azur (the Blue Coast in southern France). The Italians lost five fighters and one bomber in this engagement. The Italian fighters continued to fly escort missions until the French surrender on 24 June.

During October 1940 Italy deployed the *Corpo Aereo Italiano* (CAI, Italian Air Corps) to Belgium in support of the Luftwaffe's attacks on Great Britain. The CAI's fighter component consisted of 18<sup>a</sup> Gruppo, equipped with CR 42s, and 20<sup>a</sup> Gruppo, equipped with FIAT G 50s. The 50 CR 42s of 18<sup>a</sup> Gruppo, fitted with cockpit armor, deployed to Maldegem on 19 October. The crews were instructed about the operational sector, weather conditions, air traffic, and British tactics. On 29 October the first CAI combat mission was flown, with 39 CR 42s escorting 15 BR 20 bombers sent to attack Ramsgate. All aircraft returned safely to Belgium following the attack.

On 11 November an Italian formation — 10 BR 20s escorted by 40 CR 42s — bound for Harwich was intercepted by 30 RAF Hawker Hurricanes. The British shot down five bombers and three fighters with no losses, although the Italians did claim nine Hurricanes destroyed and four more probably destroyed. Fuel shortages and bad weather resulted in only 18 of the

CR 42s of 18<sup>a</sup> Gruppo flew bomber escort missions against Great Britain while part of the *Corpo Aereo Italiano* (Italian Air Corps) from October of 1940 to early January of 1941. This CR 42 assigned to 85<sup>a</sup> Squadriglia Caccia Terrestre taxis at Maldegem, Belgium in late 1940. The aircraft's cowling is painted yellow, with the fuselage codes in yellow with black shadow. (LUCE)



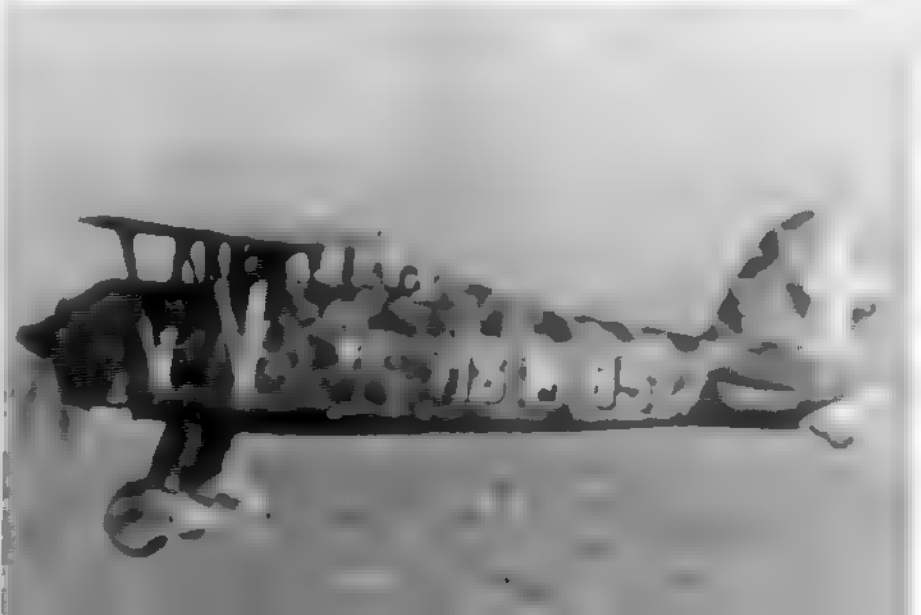
remaining CR 42s returning to their base from the Harwich raid. One of the CR 42s lost was M M 5701, flown by Sgt Pietro Salvadori of 95<sup>a</sup> Squadriglia. Salvadori made a forced landing on a beach on Suffolk. His aircraft was repaired and flown by the Royal Air Force (RAF) for tests. This aircraft now resides in the Battle of Britain Museum at RAF Hendon.

A fighter sweep by 29 CR 42s was made against Margate and Folkestone on 23 November. Two more CR 42s were lost on that mission. On 3 January 1941 *Corpo Aereo Italiano* ended their operations against Britain, and 18<sup>a</sup> Gruppo was recalled to Italy.

*Regia Aeronautica* CR 42s next saw action in October of 1940 supporting the Italian campaign against Greece. Five CR 42s assigned to 160<sup>a</sup> Gruppo Autonomo (160th Independent Group) in Albania were joined by the 46 CR 42s of 150<sup>a</sup> Gruppo in early November. The first air victory in the Italo-Greek Conflict went to a CR 42 on 28 October. Tenente (Lieutenant) Mario Gaetano Garancini of 393<sup>a</sup> Squadriglia, 160<sup>a</sup> Gruppo Autonomo shot down a Greek Henschel He 126 reconnaissance aircraft east of Darda. In an effort to support the Greeks, the British deployed Gladiator fighters and Blenheim bombers to Greece during early November. On 4 November CR 42s intercepted three Blenheims over Valona. Despite the Italian's claim of one bomber shot down, all three Blenheim aircraft returned to their base at Eleusis. During four days of combat with Greek air units between 14 and 18 November, CR 42s downed three Blenheims, one Fairey Battle light bomber, and six PZL P 24 fighters without loss. The mountainous terrain and adverse weather grounded the Italian aircraft for 82 out of 176 days of operations.

CR 42s stationed on the Aegean Islands flew alongside Luftwaffe units during the invasion of Crete in May of 1941. Fighters assigned to 163<sup>a</sup> and 164<sup>a</sup> Squadriglie of 161<sup>a</sup> Gruppo escorted German Ju 87s attacking Heraklion airfield on Crete and then strafed British forces on the

Capitano Luigi Gorrini flies his 85<sup>a</sup> Squadriglia CR 42 over Belgium during the Battle of Britain in late 1940. Gorrini shot down 24 Allied aircraft and was awarded the *Medaglia d'Oro al Valor Militare* (Gold Medal of Military Valor) during World War Two. The CR 42s of 18<sup>a</sup> Gruppo operated in Belgium from October of 1940 until January of 1941. (Gorrini)



island. Other 161<sup>st</sup> Gruppo CR 42s bombed Hierapetra harbor and Heraklion with pairs of 110.2 lb (50 kg) and 220.5 lb (100 kg) bombs. CR 42s assigned to 160<sup>th</sup> Squadriglia based at Karpathos were fitted with auxiliary fuel tanks to increase their range. These fighters provided air cover for Italian naval forces interdicting British troop movements between Egypt and Greece.

At the beginning of World War Two, *Regia Aeronautica* fighter units in Italian East Africa (Ethiopia, Eritrea, and Italian Somaliland) included the CR 42-equipped 412<sup>a</sup> and 413<sup>a</sup> Squadriglia. Maintenance for the 36 Falcos on strength declined over the course of the conflict due to spare parts shortages, which led to the cannibalization of some aircraft. Replacement CR 42s had to be disassembled and airlifted to East Africa aboard Savoia Marchetti SM 82 transports overflying southern Egypt and northern Sudan. SM 82s delivered 51 CR 42s and spare parts between August of 1940 and April of 1941.

By the spring of 1941 the Allied offensive in Ethiopia was essentially completed and the Italians were down to their last base at Gondar. The two remaining CR 42s based at Gondar claimed to have shot down Wellington bombers on 2 and 9 July. Both CR 42s were destroyed in November of 1941 — the month all Italian resistance in Ethiopia ended. One CR 42 was lost on the ground, while the other was lost on a mission in which the pilot expended all of the remaining ammunition.

## The CR 42 in North Africa

The beginning of the war in North Africa in June 1940 saw two Gruppi in Libya (10<sup>a</sup> and 13<sup>a</sup>) equipped with 52 CR 42s. These groups were joined by 9<sup>a</sup> Gruppo with 33 Falcos in July.

CR 42s were deployed to North Africa in June of 1940. This aircraft was assigned to 77<sup>a</sup> Squadriglia, 13<sup>a</sup> Gruppo, 2<sup>a</sup> Stormo. The code 77-1 on the fuselage is in red. The aircraft is camouflaged with sand and dark green uppersurfaces and light gray undersurfaces. The propeller blades remain in natural metal. A black heart is painted on a white disc on the landing gear housing. (Punka)



and 42 more followed the next month to provide a reserve. Among the fighter pilots assigned to *Comando dell' Aeronautica della Libia* (Air Command in Libya) was *Maggiore* (Major) Ernesto Botto, a Spanish Civil War air ace with five kills. Botto had lost a leg during the conflict, which resulted in his nickname *Gamba di Ferro* (Iron Leg). Two other Spanish Civil War aces in Libya were *Maggiore* Carlo Romagnoli and *Capitano* (Captain) Franco Lucchini, with nine and five kills, respectively.

The only fighters opposing the CR 42s were the Royal Air Force's Gloster Gladiators. The Gladiator's 252.9 mph (407 kmh) maximum speed was inadequate to intercept Savoia Marchetti SM 79 bombers attacking British positions in Egypt.

The Falcos first drew blood in North Africa near El Adem on 11 June 1940. Three CR 42s engaged six Gladiators escorting Blenheims attacking Italian positions. One Gladiator was shot down in the brief engagement. The next day CR 42s intercepted Blenheims over Tobruk, claiming two bombers destroyed.

During the three-month period leading up to the start of the Italian offensive in Egypt on 11 September, CR 42 pilots shot down 17 British aircraft for a loss of 36 Falcos. The CR 42s primarily flew air defense of *Regia Aeronautica* bases in the Libyan province of Cyrenaica, combat air patrols, and strafing of British armor formations. During the Italian offensive — 11 September through 9 December — the CR 42s downed 11 RAF aircraft for the loss of 13 of their own.

On 9 November the British launched their counteroffensive in the Western Desert. Hurricanes were now available to RAF squadrons in Egypt and these monoplanes, equipped with eight .303 caliber (7.7mm) machine guns, soon made their presence felt. The four Italian Gruppi had 111 serviceable CR 42s on that day. CR 42 serviceability, however, dramatically

CR 42s were deployed to southern Italy and Sicily to support Axis operations against Malta — a lone British bastion in the Mediterranean Sea. A *Regia Aeronautica* pilot stands beside a 70<sup>a</sup> Squadriglia CR 42 at Palermo, Sicily in late 1940. The pilot's parachute pack is placed on the port lower wing. The unusually wide white rudder cross extends forward to the leading edge of the vertical stabilizer. (Bundesarchiv)





CR 42 Falcos assigned to 9° Gruppo, 4° Stormo fly a combat air patrol over Libya during 1940. These aircraft display the 4° Stormo's emblem – a white horse on a black shield – on the aft fuselage. Some aircraft also display the *Gamba di Ferro* (Iron Leg) insignia of 97° Squadriglia on the tail. Maj Ernesto Botto, the 97th commander, lost a leg flying in the Spanish Civil War. (Roberto Fossi)

Ground crewman assist a taxiing CR 42 of 9° Gruppo in North Africa in 1940. The Falco had white upper wing tips and a black X under the lower left wing as identification measures. The Group deployed to Libya during July 1940 to join two other CR 42 units – 10° and 13° Gruppi – in supporting Italian operations against the British forces in Egypt. (SMA)



fell over the course of the British offensive. British and Australian fighters claimed 11 CR 42s shot down on 9 November. The Italians destroyed an additional 18 CR 42s on the ground during the first three days of the offensive when British forces overran their airfields. The losses continued while the Italians were pushed out of their foothold in Egypt and driven back through Cyrenaica.

By February of 1941 the Italians had only 44 serviceable CR 42s among the five groups in Libya. The Falcos had flown 11,286 hours of combat between June of 1940 and February of 1941. Falco pilots shot down 157 Allied aircraft while losing 78 CR 42s. Early 1941 saw 9° Gruppo relieved by 23° Gruppo, and 10° Gruppo replaced by 18° Gruppo. Additionally, 11 January 1941 brought the arrival of the German *Afrika Korps* in Libya. The *Afrika Korps* included a Luftwaffe component equipped with Messerschmitt Bf 109 fighters.

CR 42s were employed in close support missions during the first German offensive in North Africa in March of 1941. The Italians had 56 serviceable Falcos when the offensive began, however, their number was reduced to 28 by the end of the battle.

The arrival of more modern Italian fighters in North Africa, including the Macchi MC 200 and MC 202, saw the CR 42s modified into fighter-bombers. Sand filters and underwing bomb racks were fitted to these Falcos for this role. The CR 42s flew several close support missions and used their low-altitude maneuverability to compensate for the aircraft's vulnerability to ground fire. The first 14 CR 42AS fighter-bombers arrived in Libya in May 1941. These aircraft equipped 376° Squadriglia Autonomo d' Assalto (276th Independent Assault Squadron).

Only three Regia Aeronautica CR 42 units were operating in North Africa by the end of 1941. These units were 3° Gruppo with 236° Squadriglia at Ara dei Fileni, and 160° Gruppo at Sorman. The latter group's eight fighters were destroyed at Agedabia airfield when attacked by the British on 21 December.

Seven CR 42 Gruppi Assalto (Assault Groups) were formed in North Africa between May and August of 1942. These units provided close air support for Axis forces advancing through Egypt. The British halted the German and Italian advance at El Alamein in July of 1942. On 23 October the British launched a major attack at El Alamein which began the long Axis retreat across North Africa. Four days into the battle, 43 CR 42s joined 38 German aircraft in attacking British gun positions. British Spitfires and South African Hurricanes met the Axis formation over Murm Busak and El Daba. The Italians lost four CR 42s to Spitfires and one to Hurricanes, while seven Falcos were damaged in the melee. Three CR 42s were destroyed on the ground at Agedabia by British aircraft on 14 November. While the Axis forces were being pushed toward their final stand in Tunisia, the last 82 CR 42s in North Africa were returned to Italy between 7 and 19 January 1943. German and Italian forces remaining in North Africa surrendered on 12 May 1943.

## Night Fighting

The Regia Aeronautica lacked adequate night fighter aircraft to defend Italy's cities from bomber attacks. Some CR 42 aircraft were modified for this role with engine exhaust flame dampers, underwing searchlights, and additional instruments for the pilot. These aircraft were redesignated CR 42CNs. Night fighter flights of three or four aircraft were established to defend Turin, Milan, and Rome during the summer of 1940.

A *Caccia Notturna* (Night Fighter) flight of three CR 42CNs was formed within 51° Stormo at Ciampino on 12 June 1940. A second flight was soon formed under the 356° Squadriglia at Naples. Maresciallo Patriarca, a pilot of the latter unit, claimed a Royal Air Force Vickers



Wellington (serial number R1066) in combat some months later.

The *Regia Aeronautica* formed 20 night fighter flights, consisting of three CR 42CNs per flight, by 15 May 1941. The aircraft were painted with dark camouflage colors to reduce visibility in the night skies.

During the first half of 1941, the RAF launched 21 night raids on Milan, Turin, and Genoa for a loss of ten aircraft. Among those losses was an Armstrong Whitworth Whitley downed near Turin by Capt Giorgio Graffer, the commander of the 356<sup>a</sup> *Squadriglia* night fighter flight. The RAF began sending larger Handley Page Halifax and Shorts Stirling bombers against targets in Italy in September of 1941.

The Italians increased the size of their night fighter units in response to the increased British attacks. 171<sup>a</sup> *Gruppo Autonomo Caccia Notturna* (171st Independent Night Fighter Group) was formed under *Maggiore* Giovanni Buffa on 1 October 1941. The group, composed of 301<sup>a</sup> and 302<sup>a</sup> *Squadriglie*, was based at Gela. Delivery of five new CR 42CNs allowed the activation of 301<sup>a</sup> under *Capitano* Carlo Miani on 25 October. The squadron was later increased to 17 aircraft, however, only three were equipped for night flying. On 18 December 1941 171<sup>a</sup> *Gruppo* was disbanded, although 302<sup>a</sup> *Squadriglia* was reformed as a night fighter and harassment unit operating against Malta.

A new night fighter unit, 167<sup>a</sup> *Gruppo Autonomo Caccia Notturna*, was established at Ciampino to defend Rome and Naples in 1942. The Group, commanded by *Capitano* Corrado Ricci, consisted of 300<sup>a</sup> and 303<sup>a</sup> *Squadriglie* and was equipped with four CR 42CNs and 12 Caproni F 5s. Within a year, the CR 42CNs were replaced by Reggiane RE 2001, Messerschmitt Bf 110s, and Dornier Do 217Js.

## Over Malta

The small Mediterranean island of Malta held great strategic importance for both the Allies and the Axis during World War Two. Malta, a major base for the British Mediterranean Fleet, was situated along the main north-south route between Italy and North Africa and the east-west route between Gibraltar and the Suez Canal.

On 11 June 1940 the battle for Malta began with 17 CR 42s of 157<sup>a</sup> *Gruppo*, 1<sup>a</sup> *Stormo* stationed at Trapani, Sicily. A further 11 Falcos assigned to 163<sup>a</sup> *Squadriglia Autonomo*, 3<sup>a</sup> *Gruppo Autonomo* at Maritza were available, along with the 53 CR 32s of both *Stormi*. Early in the battle 9<sup>a</sup> *Gruppo* brought their CR 42s to the area before being redeployed to Libya on 12 July.

Nine CR 42s of 9<sup>a</sup> *Gruppo* shot down a Hurricane over Malta during the morning of 3 July. The following day, CR 42 pilots claimed seven fighters and one bomber destroyed on the ground at Hal Far. In reality, only two Swordfish torpedo bombers were slightly damaged in the raid. The departure of 9<sup>a</sup> *Gruppo* for Libya was balanced by the deployment of 23<sup>a</sup> *Gruppo Autonomo* to Palermo, Sicily. On 12 July, both 23<sup>a</sup> and 157<sup>a</sup> *Gruppi* attacked Malta for the first time. In addition to their attack missions, the Falcos escorted Axis bombers, rescue, and reconnaissance aircraft in the vicinity of Malta. On 11 December 1940, CR 42 pilots of 23<sup>a</sup> *Gruppo* downed a Blenheim and two Wellingtons in separate attacks. The departure of most of 23<sup>a</sup> *Gruppo* for North Africa in December left a small force of CR 42s at Palermo. This force evolved into 156<sup>a</sup> *Gruppo* in April of 1941.

During December of 1940, unit redeployments to North Africa and Italy left two groups — 7<sup>a</sup> and 16<sup>a</sup> — to operate mixed formations, including CR 42s, against Allied troop concentrations and ships. During this time, Reggiane Re 2001 and Macchi C 202 aircraft assumed the fighter role in the Malta Campaign.



A 412<sup>a</sup> *Squadriglia* CR 42 is parked next to a CR 32 at Gura, Eritrea during the 1940-41 period. Both FIAT biplane fighters fought side-by-side against the British and Commonwealth forces in Italian East Africa until Italian resistance ended in November of 1941. During that time, Italian aircraft in East Africa displayed a black diagonal cross against a white background on the fuselage. (SMA)

This 387<sup>a</sup> *Squadriglia* CR 42 assigned was in maintenance when British troops overran El Adem Airfield, Libya in November of 1940. A crude British roundel of red (center), white, and blue was hastily painted on the white fuselage stripe. Cowling panels covering the engine rocker arms were removed for servicing and placed next to the landing gear. (Höfling)

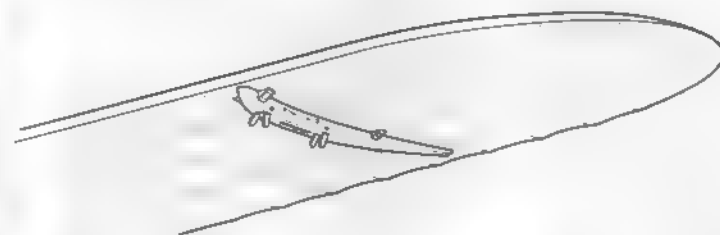




A 110.2 lb (50 kg) bomb is mounted under the starboard wing of this 387 Squadriglia CR 42AS in Libya in late 1942. The 'Diving Duck' insignia of 158 Gruppo – this squadron's parent unit – is painted on the tail. Falco pilots exploited the CR 42's low-altitude maneuverability to reduce their vulnerability to enemy anti-aircraft fire. (SMA)



## CR 42AS Underwing Bomb Rack



Italian ground crewmen pump fuel into a CR 42AS assigned to 387 Squadriglia, 158 Gruppo in Libya. The two fuel tanks inside the aircraft's forward fuselage could hold 121.5 gallons (460 L) of aviation gasoline. The aircraft is fitted with a sand filter beneath the engine cowl. Sand filters, designed specifically for North African operations, helped to increase engine life in the hot, dusty climate. (SMA)



(Above) Three 20<sup>a</sup> Squadriglia CR 42AS aircraft prepare to take off from an airfield in Libya in the fall of 1942. The aircraft uppersurfaces are camouflaged in dark green and dark brown. White Mediterranean theater bands appear on the aft fuselage. The squadron code on the aft fuselage is painted light gray with the individual aircraft number in red. This squadron was assigned to 46<sup>o</sup> Gruppo Assalto, 15<sup>a</sup> Stormo. (LUCE)

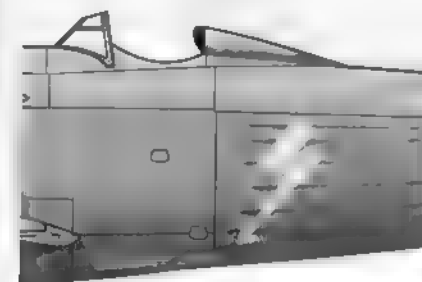
(Right) Two CR 42AS aircraft assigned to 15<sup>a</sup> Stormo Assalto (15th Assault Wing) fly above the Western Desert, while supporting Axis forces during the fall of 1942. The wing insignia is placed on the lead aircraft's tail. The lead aircraft's tactical number (15) is in white, and part of the propeller spinner is painted white for identification purposes. Unusually, the white fuselage band does not continue on the aircraft's undersurfaces. (Punka)





This CR 42 was assigned to 385 Squadriglia, 157° Gruppo, 1° Stormo at Trapani airfield, Sicily and used in operations against Malta during late 1940. The cylinder beside the aircraft supplied compressed air for the CR 42's air tank, located behind the pilot's seat. Compressed air was employed on the Falco's brake system. This CR 42 was flown by 157° Gruppo's commander, *Maggiore* (Major) Guido Nobili. The aircraft displays a white lightning bolt on the fuselage. (SMA)

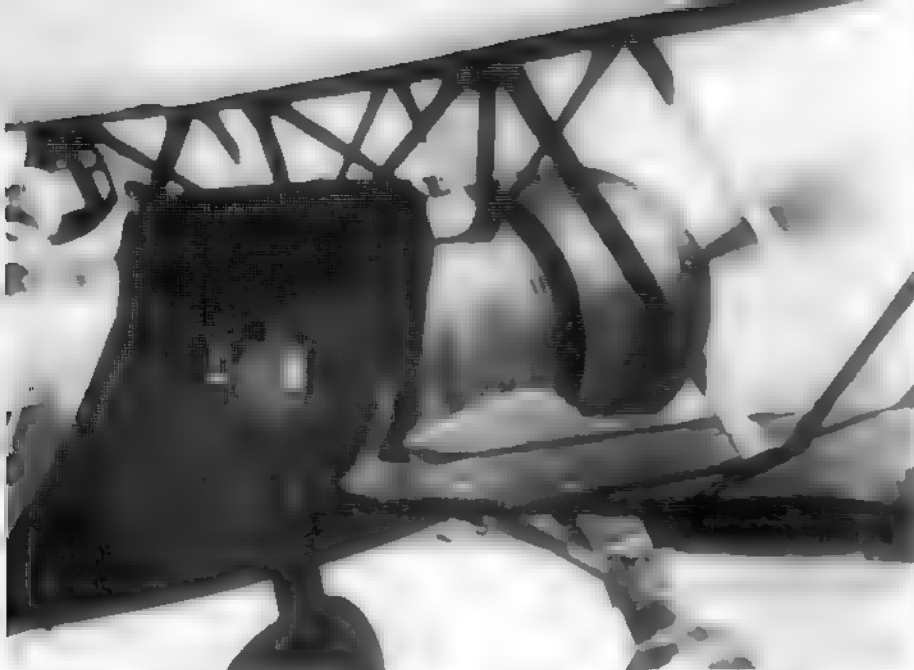
### Nobili's Insignia



Ground crewmen push a CR 42CN to its dispersal point at Palermo-Bocca di Falco, Sicily in the summer of 1942. The emblem of 377 Squadriglia Autonoma is painted in front of the white fuselage band, which does not go around the fuselage top. The squadron insignia features an owl holding a broom and sitting on a crescent moon within a yellow

triangle. A red numeral 2 appears on the white band. The CR 42CN is finished in dark green and dark gray on the upper surfaces with light gray undersurfaces. By this stage of the war, the CR 42 was largely obsolete. A Reggiane Re. 2001 fighter and two other CR 42s are parked in the background. (SMA)





The pilot warms up a 377<sup>a</sup> *Squadriglia Autonoma* CR 42CN at Palermo-Bocca di Falco during the summer of 1942. This aircraft's underwing searchlights have been removed to enable the CR 42 to perform day fighter and fighter-bomber missions. (SMA)

A mixture of CR 42 aircraft are parked on the island of Pantelleria – located between Sicily and Tunisia – in 1942. The CR 42CN in the foreground is equipped with an exhaust flame damper running under the fuselage to prevent visual detection at night by enemy aircraft and troops. The nearby CR 42AS carries the sand filter mounted under the engine cowl and bomb racks under the wings. (SMA)



A canvas cover keeps the snow out of this CR 42's cockpit during the winter of 1942-43. This Falco was modified for night attack missions with an exhaust flame damper installed under the fuselage. Italian national insignia are not painted on the upper wings of this aircraft. Uppersurfaces were camouflaged in dark green and medium green. (SMA)

Armorers install a 110.2 lb (50 kg) bomb to the port wing bomb rack of a CR 42. Two lugs secure the bomb to the rack. Sway braces on the bomb rack keep the bomb from laterally shifting during aircraft maneuvers. The armorers also attach the fuse wire to the bomb. This wire arms the bomb when the bomb is released from the aircraft. (LUCE)







The fuselage fasces emblem was located under the windshield on CR 42s. A kick step for cockpit access is placed aft of the fasces. Access panels on the forward fuselage near the base of the upper wing struts open to allow servicing of the fuel tanks and ammunition bins. The panels were hinged at the top and secured for flight with screws. (Punka)

This 99<sup>a</sup> Squadriglia CR 42 (M.M. 5701) force-landed on the beach near Orfordness, Suffolk after escorting Italian bombers during a raid against England on 11 November 1940. The Royal Air Force repaired this aircraft, assigning serial number BT474 to the Falco. The RAF painted British markings on the CR 42 and test flew this aircraft until 1943. (Höfling)



This black CR 42CN is equipped with a long flame damper. Night fighter Falcos built for the *Regia Aeronautica* employed both long and short dampers. A 220.5 lb bomb is installed under the starboard wing for night attack duties. The aft fuselage band and lettering are in white. An MC 200 fighter runs its engine in the foreground. (Bundesarchiv)

The British CR 42 (BT474) was restored to partial Italian markings upon completion of the flight test program. The emblem of 18<sup>a</sup> Gruppo has been repainted on the fuselage side; however, the wing insignia have not yet been added. This CR 42 was eventually restored to the complete markings worn during the Battle of Britain and is now on display at the Battle of Britain Museum at RAF Hendon, England. (Höfling)



## The CR 42 in Hungarian Service

The LUH (*Légügyi Hivatal*; Hungarian Aviation Department) ordered 18 CR 42s for the Royal Hungarian Air Force (RHAf) for delivery in June of 1939. Follow-up orders would bring the total of CR 42s in Hungarian service to 68 aircraft.

Two military pilots and a FIAT pilot flew the first three RHAf CR 42s (V.201 - V.203) to Szombathely on 17 June 1939. Italian pilots ferried the next 15 aircraft (V.204-V.218) to Hungary. Aircraft V.206 made a forced landing near Kormend and was sent by train back to FIAT for repairs. Hungary ordered a second batch of Falcos on 20 November 1939. The first ten aircraft (V.218-V.227) arrived during February of 1940, while a second group of ten aircraft (V.228-V.237) reached Hungary in June. Four more CR 42s (V.265-V.268) were delivered on 30 June 1940.

The first RHAf unit to equip with the new CR 42s was *1. Vadászrezred* (1st Fighter Regiment), which consisted of two *osztály* (groups). The groups' two squadrons consisted of *I/I. osztály* at Szolnok and *II/I. osztály* at Mátyásföld. The RHAf played a minor role in the Axis attack on Yugoslavia during April of 1941. The CR 42s flew many sorties over Yugoslavia and escorted Hungarian Ju 86 and Ca 135 bombers, but did not make contact with the Yugoslav Air Force.

On 26 June 1941 Hungary declared war on the Soviet Union, and immediately formed a special Air Force Brigade to operate against the Soviets. Three days later, CR 42s of the *2/3 'Ricsi'* (Ritchie) Squadron intercepted seven Tupolev SB-2 bombers over the east Hungarian city of Csap (now Chop, Ukraine). The Hungarian pilots shot down three of the Soviet bombers sent to attack the town's railroad station. On 27 June, a CR 42 flown by Lt Kázár attacked an anti-aircraft gun position near Stanislav, Ukraine. Return AA fire damaged the CR 42, forcing Kázár to land behind Soviet lines. Kázár was able to successfully evade capture due to the efforts of friendly locals and returned to his base a few days later.

CR 42s formed the fighter element of the Hungarian 'Fast Corps' deployed on the Russian Front. During July of 1941 the *2/3. 'Ricsi'* Squadron, equipped with 12 Falcos, was sent to Kolomea, while *1/3. 'Kör Ász'* (Ace of Hearts) Squadron's 12 CR 32s arrived at Jezierzany. Both squadrons were located near the front line where they could support Axis troops.

CR 42s of *2/3. Squadron* shot down three Soviet bombers and two Soviet fighters over Stanislav on 12 July. Two Falcos were lost in the engagement, including V-265 flown by Lt Vámos. After expending his ammunition, Vámos rammed a Soviet fighter and baled out. He returned safely to his unit later that day. On 22 July the Squadron's CR 42s strafed a Soviet military convoy after escorting a short range reconnaissance aircraft on a mission. Four Falcos were damaged by anti-aircraft fire, but all returned to Kolomea. The unit returned to Hungary soon after this mission.

Lt Pettendy of *1/3. Squadron*, a famous sport flyer before the war, was killed in action over Podviskoie on 5 August. Two days later, *1/3. Squadron* relocated to Pervomaik to participate in the battle of Nikolaiev. The FIAT fighters first met the fast Polikarpov I-16 fighters in this campaign. The CR 42 and Ca 135 gunners claimed eight I-16s destroyed between 9 and 12 August. On 26 and 27 August, *1/3. Squadron* pilots claimed five kills each day. Ensign Márton Szonyi, with two victories, became missing in action on 27 August. After four and one-half months of activity *1/3. Squadron* returned to Hungary. The unit shot down between 17 and 19 Soviet aircraft in 447 missions, while losing two aircraft and two pilots.

After the 1941 campaign Hungary relegated the now obsolescent CR 42 fighter to training duties. Twelve Falcos, however, were later modified for the assault role with 102. Assault Squadron during the late summer of 1944. Underwing bomb racks enabled the CR 42s to carry four 110.2 lb (50 kg) bombs. The unit never completed training in this role and turned in their aircraft at Zalahaláp in southwest Hungary in November of 1944.



This Hungarian CR 42 (V-212) nosed over while taxiing on the ground. The aircraft is assigned to *1/3. 'Kör Ász'* (Ace of Hearts) Fighter Squadron. The aircraft's uppersurfaces are painted in a splinter camouflage pattern of dark green, medium brown, and medium gray. The fuselage code is in black. (Kovács)

The nosed-over CR 42 wears the Hungarian national markings worn from 1 September 1938 until 1 March 1942. These consisted of chevrons in green (inside), white, and red painted from trailing edge to leading edge. The upper wing span of the Falco was 31.8 ft (9.7 m), while that of the lower wing was 21.3 ft (6.5 m). (Kovács)





MKHL (*Magyar Királyi Honvéd Légiero*; Royal Hungarian Air Force) armorers feed 12.7mm machine gun ammunition belts into the port ammunition bin of a CR 42. Each 12.7mm Breda-SAFAT was provided with a maximum of 400 rounds of ammunition. The wingroot oil cooler intake has been covered on this aircraft during servicing. (Punka)



The Hungarians modified this CR 42 (V-209) to accept a 930 hp Manfred Weiss WMK-14A engine in 1941. This air-cooled radial engine was a French Gnome-Rhone 14Kfs powerplant built under license. The WMK-14A also powered the Hungarian-produced Regianne Re 2000 *Héja* (Hawk) fighter. (Kovács)

CR 42 (V-218) was assigned to 1/4. 'Szent György' (Saint George) Fighter Squadron of the Royal Hungarian Air Force on the Russian Front in 1941. The aircraft wears a yellow fuselage band and upper wingtips, and a yellow fuselage code. The squadron emblem is partially visible under the venturi tube under the cockpit. (Punka)





This Great Dane head served as the emblem of the CR 42-equipped 2/3. 'Ricsi' (Richie), Fighter Squadron, Royal Hungarian Air Force. The badge appears under the cockpit of aircraft V.2+50 when it was assigned to training duties at Borgond airfield during 1943. A venturi tube for turn and bank indicator input is mounted above the emblem. (Punka)

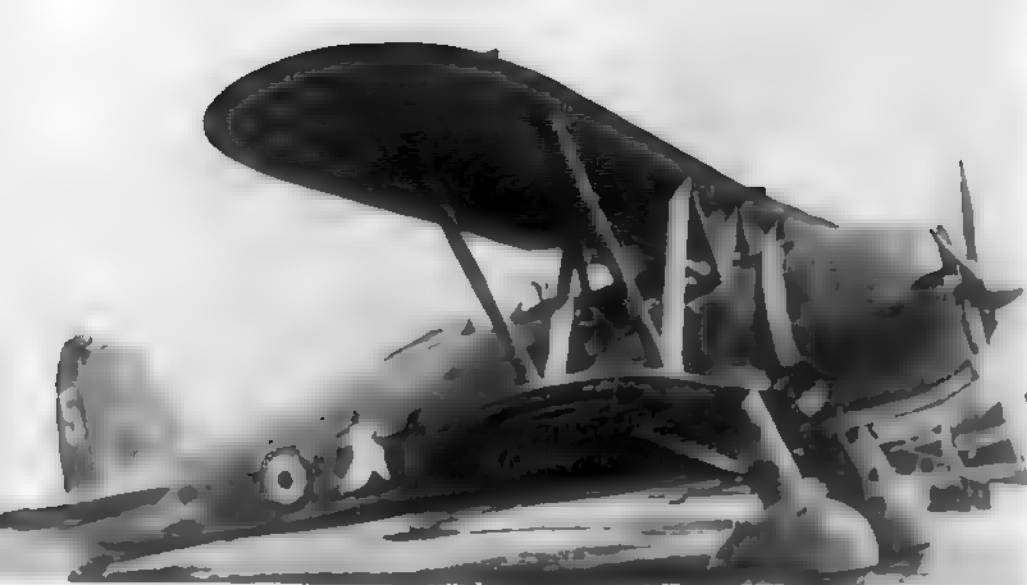
Patches were applied on the CR 42 (V-206) flown by Capt László Tomor, commander of 1/3. Fighter Squadron on the Russian Front. The squadron's 'Kör Ász' (Ace of Hearts) insignia is partially obscured by some of the patches. 1/3's pilots downed at least 17 Soviet aircraft for the loss of two CR 42s in 1941. (Kovács)



A 2/3. Fighter Squadron pilot meets 'Ricsi' in the flesh beside a CR 42. A rear view mirror was mounted on the port upper wing strut as a field modification. This Falco's port wheel fairing is painted white. A yellow band extends around the fuselage just behind the cockpit. The red fuselage code has been overpainted in green to reduce visibility. (Punka)

After the 1941 campaign Hungary began relegating their obsolescent CR 42s to fighter training duties. This Falco was assigned to the school at Szombathely in 1944. The revised national markings adopted on 1 March 1942 – red, white, and green tail striping, and white crosses on black squares – have been applied to this aircraft. (Punka)





(Above) This FIAT CR 42 was assigned to 4<sup>ème</sup> Escadrille, 11<sup>ème</sup> Groupe de Chasse (4th Squadron, 2nd Fighter Group) of the Belgian Air Force in early 1940. The squadron's 'Cocotte Blanche' (White Paper Duck) emblem is painted ahead of the roundel on the aft fuselage. The tactical number on the rudder and the type designator under the horizontal stabilizer are in white. (Brussels Air Museum via Marton)

## The CR 42 in Belgian Service

Belgium became the second export recipient for the FIAT CR 42 in September 1939. FIAT delivered 30 aircraft to meet the urgent needs of the 11<sup>ème</sup> Groupe de Chasse (11. Fighter Group) at Nivelles. The group comprised the 3<sup>ème</sup> and 4<sup>ème</sup> Escadrilles (3rd and 4th Squadrons) commanded by Major Lamarche. The first 24 CR 42s were delivered to the *Établissements Généraux de l'Aéronautique Militaire* during January and February of 1940. The six remaining machines were delivered the following month. The two squadrons each received 15 CR 42s, assigned the serials R 1 to R-30. The insignia of 11<sup>ème</sup> Groupe de Chasse was the *cocotte* (paper duck), white for 3/II. and red for 4/II.

Germany launched its attack on Belgium during the early morning hours of 10 May 1940. 3/II Escadrille had 15 CR 42s in service, while 4/II Escadrille had eight available aircraft. The aircraft were being moved from Nivelles to Brusthem airfield near the German border when the Luftwaffe struck. The Belgians lost one CR 42 to a crash landing and another while intercepting Dornier Do 17 bombers. Ju 87 Stuka attacks destroyed an additional 15 Falcos on the ground. The group redeployed to Nieuwerke and shot down five confirmed aircraft over the next 18 days. Luftwaffe fighters shot down one Falco on 16 May. Belgian personnel sabotaged the remaining five aircraft after surrendering to Germany on 28 May 1940.

(Below) CR 42 (White 21) was assigned to 4<sup>ème</sup> Escadrille 'Cocotte Blanche' at the time of the German invasion. The propeller spinner is silver and the black serial R-21 is displayed across the undersurface of the lower wings. The Belgian CR 42s were based at Nivelles and were in the process of transferring to Brusthem when Luftwaffe aircraft struck on 10 May 1940. (Brussels Air Museum via Marton)





## The CR 42 in Swedish Service

Sweden's *Flygvapen* (Air Force) placed the third and largest export order for the FIAT CR 42. Between February of 1940 and September of 1941, the Swedish received 72 Falcos from Italy. Sweden turned to Italy for military equipment after the United States embargoed military exports to Sweden. The first 12 machines were flown to Sweden during February and March of 1940. The 60 remaining aircraft were crated and delivered to the Malmsträtt Aircraft Depot for assembly between 20 December 1940 and 11 June 1941. The last three CR 42s were delivered to the units on 3 September 1941. The *Flygvapen* designated the CR 42 the **J 11** and assigned the aircraft to the four squadrons of *Flygflottilj* (Wing) 9 at Säve, near Göteborg.

The CR 42s participated in annual military maneuvers in February of 1941. Some problems occurred with the aircraft, primarily due to the CR 42 not being designed to fly in Scandinavian weather conditions. Nevertheless, the aircraft's overall performance, compared to other fighters in Swedish service, made the **J 11** popular among *Flygvapen* pilots.

After the fall of 1943 the 40 CR 42s remaining in service were consolidated into two squadrons. The *Flygvapen* retired the **J 11** from service during March of 1945. Svensk Flygtjänst AB acquired 13 CR 42s for conversion into civil-registered target tugs. The firm also purchased an additional six Falcos to be cannibalized for spare parts.

(Below) Cadet Svante Nordquist flies a pristine **J 11** (2543) assigned to *Kungliga Gota Flygflottilj* F9 at Säve in 1940. Swedish CR 42s retained the Italian camouflage scheme of dark green and yellow ochre uppersurfaces and light gray undersurfaces. The 9 beside the fuselage roundel indicating the wing is in black, while the individual aircraft number (11) on the engine cowling and vertical tail is painted white. (Schmidt via Mujzer)



(Above) The *Flygvapen* (Swedish Air Force) assigned the designation **J 11** to their CR 42s. **J 11** (2541) was assigned to the 1st division (squadron) of *Flygflottilj* (Air Wing) 9 at Säve. Swedish roundels – three gold crowns on a light blue circle trimmed in gold – were painted on the undersurface of the upper wings. The **J 11** served until March of 1945 and was well liked by its pilots. (Höfling)

## The CR 42 in German Service

The Luftwaffe considered the FIAT CR 42 a suitable aircraft for night harassment and anti-partisan roles. This resulted in the German *Rüstungs-und-Kriegsproduktion Stab* (Armaments and War Production Staff) ordering 200 **CR 42LW** aircraft from FIAT for German service. The Staff took control of Italy's aircraft industry after the Italian armistice of 8 September 1943. The CR 42LW was equipped with exhaust flame dampers and underwing bomb racks for four 110.2 lb (50 kg) bombs. An American air raid on the FIAT factory in Turin destroyed several completed and semi-completed aircraft on the production line. This attack resulted in the completion of only 150 CR 42LWs, with the Luftwaffe accepting 112 of those into service. The first CR 42LW was delivered to *1. Staffel* (Squadron) of *Nachtschlachtgruppe* (NSGr.; Night Attack Group) 9 at Udine, Italy in November of 1943. This squadron was previously equipped with Caproni Ca 314 light bombers for use against partisan forces in the Alps, Istria, and Croatia. The Germans found the twin-engined Ca 314s unsuitable for this role.

On 28 January 1944 *2. Staffel* of NSGr. 9 was formed and the group began operating from Bolsena in the Nettuno area and against Anglo-American forces around Monte Cassino. In February of 1944, nine additional aircraft under *Hauptmann* (Captain) Rupert Frost flew from Centocelle, near Rome. On 30 April, five CR 42LWs were destroyed on the ground by American P-47 Thunderbolts attacking Rieti airfield. Shortly thereafter, *1. Staffel* was re-equipped with Junkers Ju 87D Stukas, which could carry heavier bomb loads than the Falcos. CR 42s remained in *2. Staffel* service until June of 1944.

The CR 42LW equipped the newly formed third squadron of *Nachtschlachtgruppe* 7 at Zagreb, Croatia in April of 1944. The group's other two squadrons operated a mix of elderly Heinkel He 46, Henschel Hs 126, and Dornier Do 17 aircraft on anti-partisan duties in the

**CR 42 (Red 83) was employed in the night harassment role by *Nachtschlachtgruppe* (Night Attack Group) 20 at Strasbourg, France. The aircraft is parked on metal netting used on German forward airfields to prevent rutting of the dirt runways and dispersal areas. A cart containing two compressed air bottles is parked beside the CR 42's tail. (Petrick)**

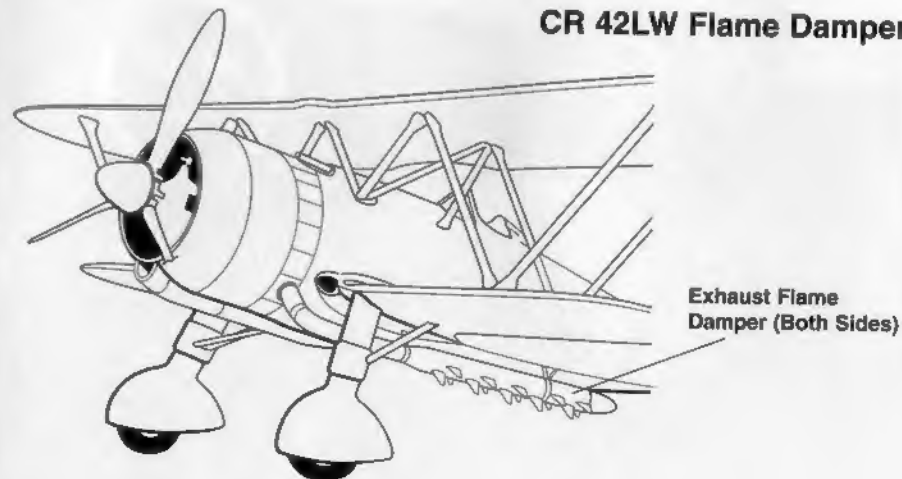


This Luftwaffe CR 42AS taxis at its base near Strasbourg, France on 28 October 1943. A red tactical number 86 is painted on the yellow aft fuselage band. The aircraft is painted dark green over light gray, using Italian colors. The main landing gear fairings were removed to facilitate operations from muddy airfields. (Petrick)

Balkans. By September, *2. Staffel* was transferred to Pleso, Croatia and began operating 26 CR 42LWs alongside *3. Staffel* already deployed there. The FIAT aircraft later equipped *1. Staffel*, based at Graz, Austria. On 8 February 1945, NSGr. 7 lost three CR 42LWs to Allied fighters and a fourth to anti-aircraft fire.

When World War Two ended in Europe, over 20 CR 42LWs remained with NSGr. 7's *Gruppenstab* (Group Staff) and *2. and 3. Staffeln* based at Zagreb-Goriza. The first squadron remained at Graz.

### CR 42LW Flame Dampener





This Luftwaffe CR 42AS (M.M. 90823) crash landed at Andelfingen, Switzerland on 14 February 1944. Swiss authorities interned the German pilot of this aircraft. German markings were applied over the Italian camouflage of Falcos seized by the Luftwaffe after the Italian armistice of 8 September 1943. (Stapfer)

German CR 42s are prepared for a night harassment mission. The swastikas normally painted on the tails of Luftwaffe aircraft were not painted on these CR 42s. Landing gear fairings were removed to facilitate operations from muddy forward airfields. Individual aircraft numbers are in red on the yellow aft fuselage band. (Petrick)



The nosed over CR 42AS (M.M. 90823) reveals the damage caused by the crash landing at Andelfingen. Despite the loss of the tail, the wings and their Warren Truss support structure are remarkably intact. German crosses were painted over the Italian roundels on the upper wings, however, the black rings of the former markings surround the crosses. The aircraft is painted Italian dark green over Italian light gray. (Stapfer)

CR 42LW (Werke Nummer/Construction Number 9161) leads a row of three aircraft at a Luftwaffe *Nachtschlachtgruppe* base. Tactical number 88 is in red on the yellow fuselage band. The tail swastika of this CR 42LW is unusually small for an aircraft this size. Germany accepted 112 CR 42LWs produced by FIAT in 1943. (Petrick)







The Royal Hungarian Air Force's 1/2. Vadászszázad 'Ludas Matyi' (Matti the Goose Boy Fighter Squadron) operated the CR 32 from Felsőábrány, Hungary during the summer of 1941.



CR 42 (162-4) was assigned to 162a Squadriglia, 161° Gruppo at Rhodes in the Dodecanese Islands in 1940. Falcos from this group supported the German invasion of Crete during May of 1941.

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